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90 Day Kit Assessment

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Reducing Costs Associated with the 90 Day List: A Siemens Improvement Project

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EXECUTIVE SUMMARY

The purpose of this research project was to reduce the costs incurred by Field Service Products Atlanta. These costs occur when a rental tool set or system, is verified outside of the 90-window stipulated on the rental agreement. Any missing durable goods within the kits become the liability of FSPA to replace out of their budget.

Before any the processes could be measured, data needed to be gathered and analyzed. For the first step of gathering data, the 90 day lists from the months of June 2018 through December 2018 were compared against each other to determine when a kit was refurbished and thus removed from the list. The dates of kit removal were then compared to the due date and any kits removed from the list after their due date were marked as late.

Next, the group called on Turner Supply to provide refurbishment orders. Any late kits were compared to the refurbishment orders using kit specific serial numbers and the total value of refurbishment items was recorded. This step completed establishing the baseline.

Upon analysis, the group determined that the percentage of kits checked in late ranged from 21.9% to 68.3% which was attributed to seasonal demand when emphasis is for tools to be shipped rather than inspected and removed from the 90-day list.

Monthly refurbishment costs ranged from $2,608.84 to $118,764.16 with the total of refurbishment orders placed on durable goods totaling $295,086.87 for the months of June through December of 2018.

The group approached this project using a Six Sigma Process Improvement model and relying on basic economic analysis and queuing theory to determine the best feasible solution to the problem.

After a baseline was determined, the group decided to concentrate on the “majors”, A Set and B set, primarily because A sets checked in outside of the 90-day window account for a large dollar value of refurbishment orders and B sets are an example of kits that are refit in a timely manner rarely staying on the 90-day list for more than a few weeks.

After evaluating the intake, refit, and inventory process, the group came up with multiple alternatives for the question we aimed to solve.

- Solution One – hire a kit “assessor” to work in the receiving department. This assessor would primarily be responsible for assessing the tool kits returned from the customer. According to our calculations, the assessor would spend half his/her time assessing kits and could be cross trained to help in other areas of the warehouse such as shipping or pulling orders.
- Solution Two – add additional help in the individual labs. Adding help in the labs would help to alleviate the bottlenecks caused by the lengthy turnaround time for testing and certification.

- Solution Three – create a holding area for kits returning from the customer. This area would be a visual representation of what was on the 90-day list and still needed to be inspected. Once kits were broken down in the holing area and all sub-kits and individual items that needed testing and certification taken to their individual labs, the remaining portion of the kits would be assessed and put into inventory. When it was time to pull a kit for an order, the main kit would be pulled as well as the next available sub-kit or item that was needed. Serial numbers would no longer be used.

After using a weighted Matrix and evaluating the three solutions, our group determined that solution one is the optimal solution and recommended hiring an assessor to work with the receiving team.

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CHAPTER ONE – PROJECT BACKGROUND

1.1 INTRODUCTION

Headquartered in Berlin and Munich Germany, Siemens is the largest industrial manufacturing company in Europe with branches worldwide. Siemens has four min branches which contain all the major activities of the company; Industry, Energy, Healthcare, and Infrastructure and Cities.

The energy needs of today are changing. Power generation is no longer as centralized as it has been in the past which lends to complex problems in grid management. Individual energy sources are becoming more and more important as the options for power generation are opening and changing. Siemens meets these challenges with cutting edge products and services that cover the entire energy value chain.

For this project, we looked at the 90 Day List (NDL) for the Field Service Products (FSPA) in Atlanta, Georgia. The 90-Day List is a list containing returned tool sets and systems that need to be inspected within a 90-Day window of being returned to Siemens. The 90-day requirement is set by the rental contract which designates an inspection period and allows for financial liability of missing or broken tools to be placed on the customer. If an inspection of the system is completed outside of the 90-day window and there is an item(s) that needs to be replaced, the financial responsibility of replacement is on the rental depot.

At the beginning of this project, the NDL contained 165 tool systems that still needed an initial inspection prior to removal from the list but were already late. It is our hope that with the completion of this project, Siemens will have a solid solution, backed by data, on how to solve the problem of costs incurred by refurbishment outside of the allowed window.

1.2 OVERVIEW

Field Service Products (FSPA) in Atlanta, GA provides Siemens Energy, Inc., with tool sets and systems used to work on Power Generation Equipment. When the FSPA receives the tool systems back from the customer, there is a window of 90 days in which the FSPA must verify that the tool systems were returned complete and operational. If the verification process happens within the 90-day window and something is missing from the system, the FSPA can bill the customer for the missing or damaged items. If the tool system is verified outside of the 90-day window, the FSPA must replace any missing tools out of their own budget. Systems awaiting verification are monitored by the 90-Day List. Upon the groups arrival at the TCIF, there were 168 sets and systems still on the 90-Day List but outside of the allowed verification window.

Using Six Sigma as a model for the improvement process, our team set out to identify and improve turnaround times for tools and systems on the 90-Day List by concentrating on "the majors", Tool A Set and Tool Set B. Using financial analysis, simulation, and queuing theory, our team came up with three possible solutions to the problem and used a weighted matrix to determine the best possible solution.

Our group suggests that the TCIF adds an "assessor" within the receiving department who has the sole responsibility of assessing tool systems up on their arrival. The wages of the assessor are easily covered by the money saved from replacing missing tools in "the majors" when the sets are inspected outside of the 90-day window.

1.3 OBJECTIVE

The objective of this project is to come up with a logical, affordable, and simplified process to ensure that returned tool systems have their initial inspection within the 90-day window. This needs to be done while working with the labor hours, space, and schedule that is already in place.

1.4 JUSTIFICATION

The justification for this project is found by looking at the cost of verifying kits outside of the 90-day window. During the window, the customer is responsible for the cost of missing or broken items but outside of the window, the depot is responsible for replacing items in the kits. To establish the need for this project, the 90-day lists for the months of June-December were reviewed and a cost of missing items was established.

Using the data provided by Siemens, we determined that the cost of replacing items that should have been covered by the customer if the tool set was inspected in time, was approximately $300,000. While the tool depot's main priority is to rent tools to all the Siemens districts, it appears that with some improvements in procedure and ownership of the tasks within the process, this number could be drastically reduced.

1.5 BACKGROUND

For this project we are focusing on the Field Service Products tool depot in Atlanta, GA. The tool depot receives orders for tool sets and systems needed to work on turbines and generators around the US. These orders are placed by the individual Siemens "districts". Each district knows upcoming jobs and arranges for the rental of the necessary tools required to do the job. The requirements vary depending on the job, but each rental agreement allows for a 90-day window upon return of the rented tools systems for inspection. The tool depot fills the order and ships the tools to the requested location where they are used and then returned. Most of the rental agreements are for at least 30 days.

Once the tools are returned to the tool depot they are received into the system and a green tag is placed on each tool system. The systems range from huge containers down to kits in Pelican boxes that could fit in an automobile. Once the kits are received and green tagged, they are physically returned to the inventory storage areas in the warehouse racks. Once the tool set is revived back into TCTP (Siemens global tool control software), the tool system is placed on the 90 Day List (NDL). This list is important because per the rental agreement, the tool depot has 90 days to verify that the tool systems are returned complete and in working order. If the tool depot finds a missing or broken item during this time, the tool depot can bill the customer (the district) for the missing items. If the tool system is checked in after the 90-day window expires, the tool depot is responsible for replacing the missing or broken tool.

Siemens is at the mercy of seasonal work. During Spring, there is always an influx of orders that need to be shipped. Forecasting is limited to orders that come in months ahead of time however

receiving orders for the following week is not unheard of. Due to the uncertainty and sudden influxes in orders, sometimes the 90 Day list is put to the side to get orders out the door.

Many of the employees responsible for returned kit verification find it easier to inventory the tool systems when they are ready to test and service the items in the kit. For example, all precision items need to be calibrated and recertified which takes time. All electrical components need to be tested as well as pneumatic, torque, and even the hoses. Everything in the tool system must be checked before the tool system can be approved to be rented and leave for the next customer. Some of the shops can take up to 14 days to certify or check an item. Due to the requirements to inspect a system, most of the time the system is not looked at until it is time for the testing/certification process. The tool sets are then broken down, items are sent to the labs for testing and the tool kit remains open and in limbo until the calibrated and tested items are replaced. Since there is really no way to use inventory principles like FIFO (First-In, First-Out), sometimes it is the same tool systems that are inspected and sent out, inspected and sent out, while another kit is left alone and quietly falls off the 90-day list; its period for inventory review is over and any missing items are now up to the tool depot to replace.

1.5.1 RECEIVING PROCESS

Workers are notified immediately once the tools are returned to the tool depot/system. Once the kits are received, they are physically returned to the inventory storage areas in the warehouse racks.

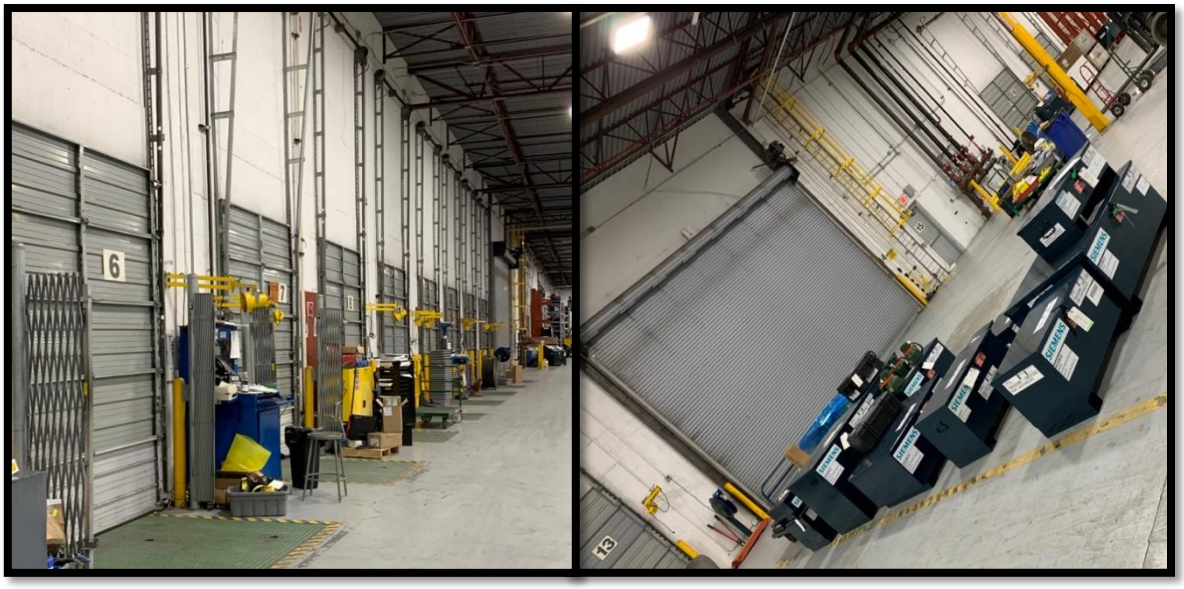


Figure 1: Receiving Department

1.5.2 KIT TAGGING PROCESS

Once the tools are returned to the tool depot they are received into the system and a green tag is placed on each tool system. As the kits are received and green tagged, they are physically returned to the inventory areas in the warehouse racks. After tools have been inspected, the tool kits are white tagged and placed back in inventory racks to be stored or shipped to the customers.

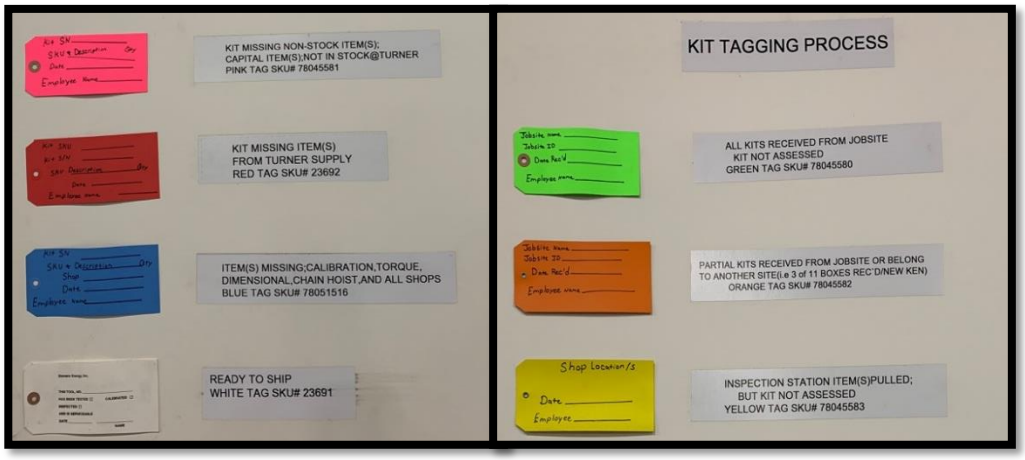


Figure 2: Kit Tagging Process

1.5.3 WAREHOUSE RACKS

The storage areas that includes six racks each, and each rack has a different number of shelves as shown in Figure 3 below. Employees store the returned tools that come back from the customers till they reopen and inspect them. The current sorting process of warehouse racks does not achieve the goal of never missing a deadline, and the process heavily contributes to the number of kits missing, resulting in financial loss for Siemens.

Figure 3: Warehouse Racks

1.5.4 INSPECTION PROCESS

The different departments bring tools from their kits to be inspected, repaired, or replaced based on the decision's maker breakdown. The systems range from huge containers down to kits in small boxes.

Figure 4: Set B Mid-Inspection

1.6 PROBLEM STATEMENT

Refurbishing tool sets and kits outside of the allowed 90-day window costs the FSPA hundreds of thousands of dollars a year. Our calculations show that from the months of June to December of 2018, the FSPA spend almost 300k replacing tools could have been replaced by billing the customer. Our group aims to reduce the value of refurbishment orders placed outside the 90-day window by at least half or perhaps eliminating all late inspected kits altogether.

CHAPTER TWO - LITERATURE REVIEW

The Night Owls team conducted a research on delay time inspection model of a company leasing construction equipment. Because of the high equipment usage in construction activities, maintenance take a huge rule to meet these projects. Alternatively, builders can easily lease equipment as an option to have an advantage of accessing best available equipment at a cheaper cost, in addition to the fact that maintenance is the lessor company's responsibility. The authors in this article propose an inspection policy for developing an inspection program and forming inspection and maintenance response teams based on the delay time concept. The purpose of the models proposed aims to supporting maintenance planning by equipment-leasing companies in the construction industry. They consider the number of maintenance teams for emergency demands as a decision variable and illustrate the use of the model in a real situation involving a lessee and a leasing company. They also highlight the practical impacts of the model by calculating different scenarios and highlight the contribution provided by the proposed model.

The objective of the model is to determine the optimum time of inspection and the number of teams assigned to maintenance. Therefore, the company can use the model to find the inspection policy with the lowest cost and to determine the interval between inspections and the required number of teams. The waiting time in the system for answering emergency calls
follows a multi-server queuing system. The queuing system for service is explored in the context of maintenance.
The queue equations presented by Hillier and Lieberman (1997) and Satyr (1961), the λ (lambda) queue represents the arrival rate in the queuing system or in the proposed model and is represented by Nf(T). Thus, it is possible to describe the failure call to the maintenance team, where the lambda queue is random but is influenced by the inspection policy adopted with the service rate, μ, of the maintenance team

According to the article, to meet the leasing requirement, the company can contract and establish a policy with minimum cost because the cost of maintenance accounts for many of the operating costs. Using the model, it is possible to measure the consequence of the alternative time of inspection, the inspection teams and the teams of emergency attendance. In the inspection policies in the literature, failures are considered in the dimensions of cost, using the inspection policy with a view to reduce the number of failures through scheduled inspections. However, failures follow a random process and can occur at any time between inspection programs. Thus, it is important for the decision maker to scale attendance for failure occurrence.

In the next article, the Night Owls team reviewed a problem of a multi-criteria decision model to determine inspection intervals of condition monitoring based on delay time analysis. In periodic monitoring, the main problem is to determine the inspection times of condition monitoring. For this problem, the decision variable is represented by the time of next inspection of condition monitoring. The main objective of this paper is to propose a decision model that can determine inspection intervals for condition monitoring regarding the failure behavior of equipment to be inspected, features of maintainability and decision maker preferences about cost and downtime

MAUT (Multi-attribute utility theory) was chosen to model the problem. The main reason for this choice assumes that the decision maker's reasoning for this problem can be represented by

the axiomatic structure of this theory. In this theory, the compensation between the criteria implies the use of a synthesis function the goal of which is to aggregate all criteria in one analytic function. As a simple definition, MAUT expands the number of axioms of utility theory to deal with more than one criterion. The basic idea of utility theory is to quantify the decision maker's wishes, relating the assets to the values that represent a rule of choice for the decision maker. Utility theory in the selection of inspection intervals allows the consequences of the decision maker's risk structure to be considered when determining an inspection policy. Among several aspects in favor of MAUT, its feasibility for modelling the continuous scale of the alternatives was another relevant factor considered for the specific case of an inspection problem.

The authors aim was to develop a model to determine the inspection intervals of periodic condition monitoring. The model proposed is based on delay time analysis assumptions and a multi-criteria framework. This kind of model is especially relevant when consequences have more than one dimension to be considered. This is verified in the production systems of services as opposed to one objective function optimization models. MAUT was chosen to model a decision maker's preferences for the cost and downtime attributes of an inspection policy. A decision model application in an electric power distribution company was presented. This application highlighted the suitability and practicality of the model. It allows a broader view of the problem, in addition to which it weights the alternative that is in accordance with the decision maker's preference.

CHAPTER THREE – PROJECT MANAGEMENT

3.1 PROBLEM SOLVING APPROACH

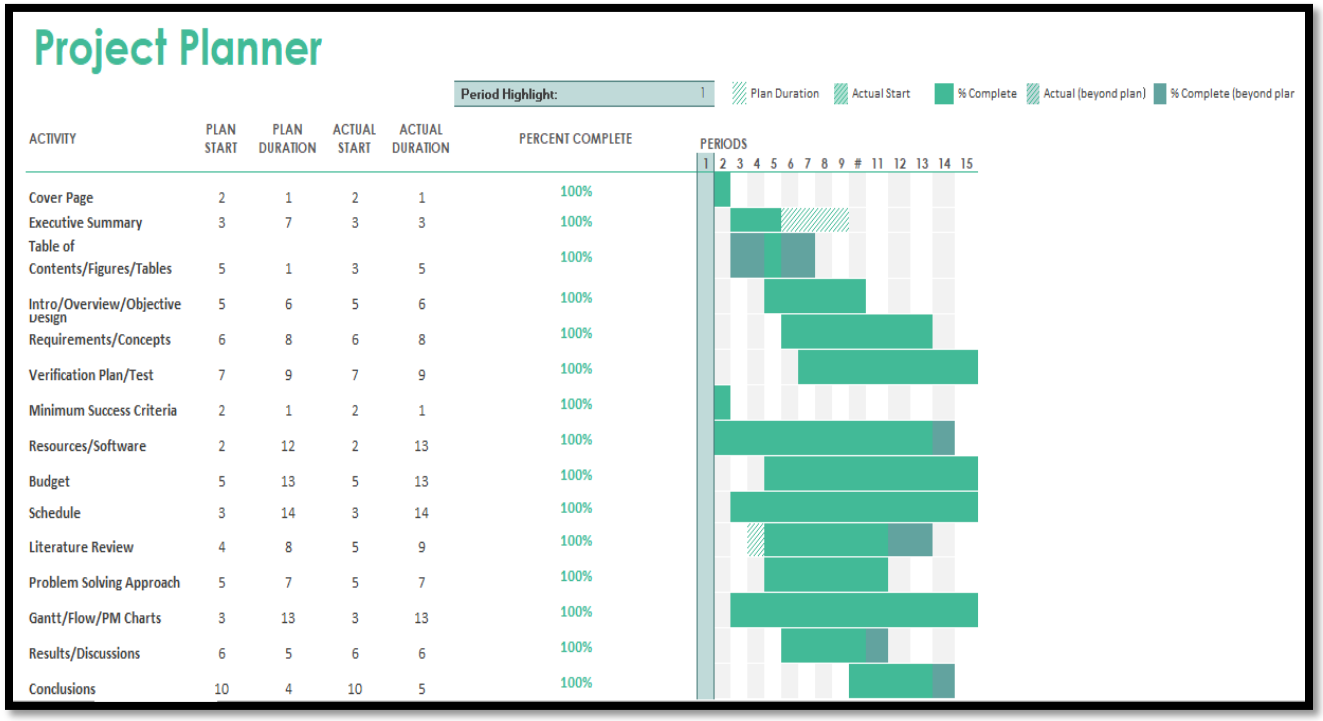
The problem-solving approach used for this project was Six Sigma. We chose to follow the outline for a Six Sigma Process Improvement Project because we felt that we could easily follow the DMAIC process and end up with a solution we were confident in.

For ease of access we met at the FSPA once, sometimes twice a week. While we were there, we were able to utilize Siemens employees and managers as well as TCTP. We also gained insight by speaking with long time employees and visually following the process of kit inspections.

3.2 REQUIREMENTS

As we discovered the need for improvement of verifying kits on the 90-day list prior to the window closing, we in a way found our own project. We were given permission from Siemens management to delve deeper into the 90-day list and the costs associated with it.

3.3 PROJECT MANAGEMENT



ACTIVITY	PLAN START	PLAN DURATION	ACTUAL START	ACTUAL DURATION	PERCENT COMPLETE
Cover Page	2	1	2	1	100%
Executive Summary	3	7	3	3	100%
Table of Contents/Figures/Tables	5	1	3	5	100%
Intro/Overview/Objective Design	5	6	5	6	100%
Requirements/Concepts	6	8	6	8	100%
Verification Plan/Test	7	9	7	9	100%
Minimum Success Criteria	2	1	2	1	100%
Resources/Software	2	12	2	13	100%
Budget	5	13	5	13	100%
Schedule	3	14	3	14	100%
Literature Review	4	8	5	9	100%
Problem Solving Approach	5	7	5	7	100%
Gantt/Flow/PM Charts	3	13	3	13	100%
Results/Discussions	6	5	6	6	100%
Conclusions	10	4	10	5	100%

Figure 5: Gantt Chart for Siemens Project

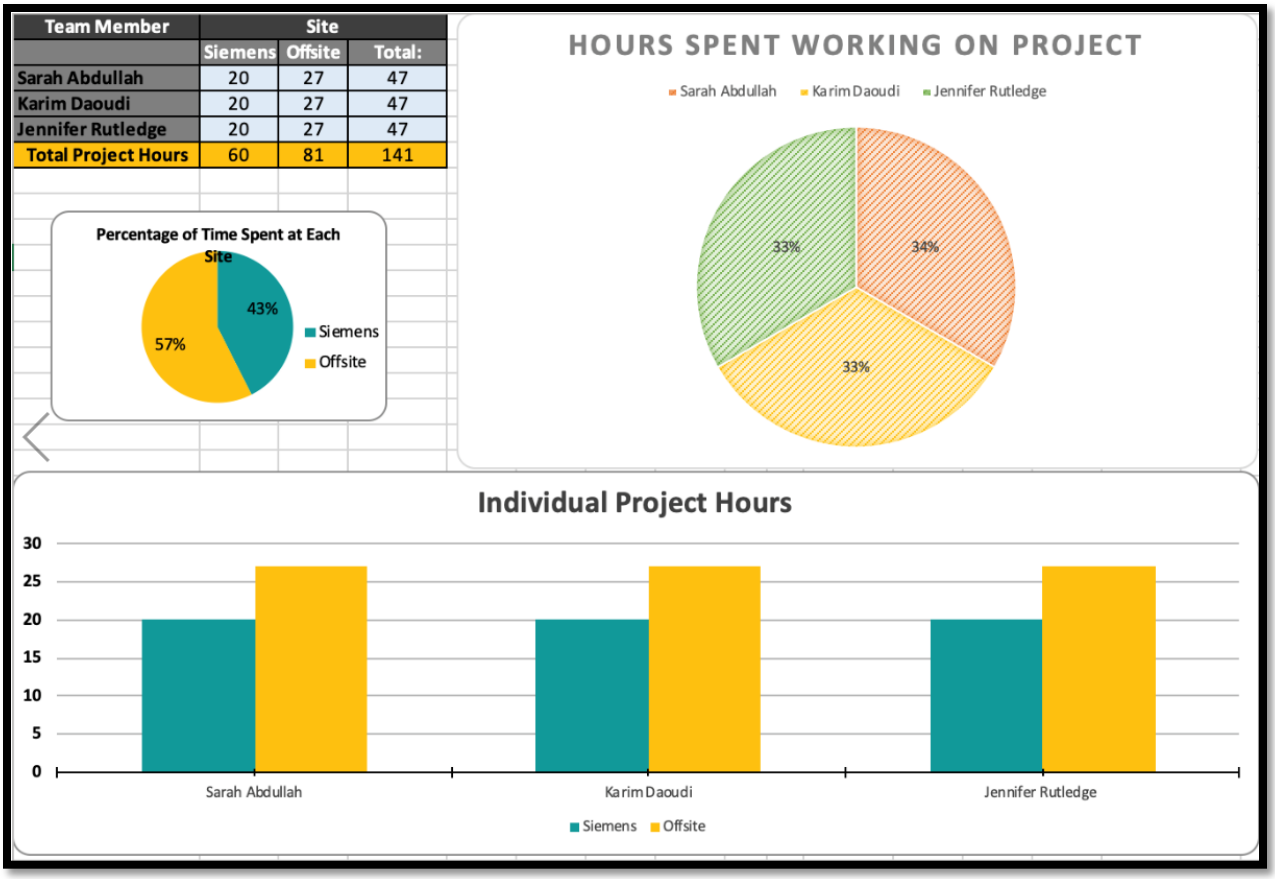


Figure 6: Hours Spent on Project

Table 1: Task Responsibility

Team Responsibilities / Tasks		
	Description of Task Completed	Hours Spent
Siemens Meetings	Met with Blanche	3
	Met with Aaron	1
	Met with Berry Madison to discuss Stockroom Reports	2
	On-site - Time Studies	19
	On-site - Management Meetings	20
	On-site - Shadowing	15
Off-Site Meetings	Project Proposal Presentation to faculty advisor	10
	Meeting with the team discuss important dates throughout the semester	5
	Meeting with faculty advisor to discuss project approach	5
	Meeting with team to study data	50
	Developed action tracker to keep track of items due throughout the project	4
	Compiled initial data request	7

Total Hours Spent Working on Project
141
Total Hours On-Site
60
Total Hours Off-Site
81

3.5 BUDGET

The budget for all Siemens student projects caps at $2000. We hope to offset any recommendations with found savings.

3.6 RESOURCES AVAILABLE

Siemens Staff:

- Blanche Singleton – Plant Manager
- Darin Bland - Operations Manager
- Ernie Ayala – Project Manager
- Berry Madison – Strategic Account Manager at Turner Supply

Resources:

- TCTP system. – Tool control and Tracking
- Turners Supply Company Stockroom Report
- The 90 Day List generated from TCTP

CHAPTER FOUR – TECHNIQUES FOR IMPROVEMENT

4.1 SIX SIGMA IMPROVEMENT PROCESS

Six Sigma can be defined as a business improvement approach based on tools and techniques that seeks not only to identify and eliminate the causes of defects and errors, but also to mitigate variability in a business process. On the other hand, DMAIC stands for a data-driven improvement cycle composed of five steps which are as follows: Define, Measure, Analyze, Improve, and Control. The way both concepts are linked together is through DMAIC, one of the tools used in Six Sigma projects to improve and optimize a business process.
Prior starting a process improvement, it is crucial to select projects that are good candidates for improvement. For any project to be nominated, it must satisfy the following criteria:

- The project must have a clear problem within one or multiple processes. Our project meets this requirement by the high dollar value spent to replace items outside of the 90-day window due to inefficient verification processes and procedures.
- The project must have the potential to result in increasing revenue, reducing cost, or improving efficiency. If our project is implemented, we aim to reduce the dollar value of refurbishment orders the tool depot must pay rather than bill the customer for.
- The project should have collectable data. Our project has collectible and quantifiable data that will be analyzed and presented in aggregate form due to confidentiality restrictions.

Since our project satisfies all the appropriate conditions, it is eligible for us to conduct Lean Six Sigma process improvement.

4.2 DEFINE PHASE

The Define Phase is the phase where the team creates a project charter that defines the followings: the problem and the goal statement, the process by developing maps. In this phase, our project team was given access to the 90 Day List, a list that each tool set is added to when it is returned to the depot. The 90 Day List contained the following categorical data: Name of the toolkit, Serial/SKU number, and Date Received. The 90-day is an inspection period set by the rental contract to examine missing or broken tools that are returned from the customers. If the inspection occurs within the 90 days, Siemens can bill customers for any deficiencies found. On the other hand, if the inspection takes place outside the 90-day window, Siemens cannot bill the customers for any shortages found which results in significant losses for the company. After performing the refinement process in the collection of data, our team identified a set of issues regarding the data. One significant issue was that the list included hundreds of items from last year that were not inspected yet. This helped our team to create the problem statement which is found in section 1.6 and repeated here: Refurbishing tool sets and kits outside of the allowed 90-day window costs the FSPA hundreds of thousands of dollars a year. Our calculations show that from the months of June to December of 2018, the FSPA spend almost 300k replacing tools could have been replaced by billing the customer.

In response to this problem, we established our goal statement, “Our group aims to reduce the value of refurbishment orders placed outside the 90-day window by at least half or perhaps eliminating all late inspected kits altogether.”

The next step is to define the process by documenting process maps. We used a Process Flow Chart shown in (Figure 7) as a graphical representation to illustrates the sequence of activities within our process. The process starts by customers returning tool kits to the tool depot. The tool sets are then received back into the system using TCTP and a green tag is placed on them. Once they are green tagged, the tool sets are placed into inventory racks where they wait until it is time for them to be inspected and refit (missing items replaced and testing, or certification done). At this time, they are pulled from the racks and taken to a breakdown area where they are inspected and taken to the necessary labs. Once the inspection/refit/certification process is complete, the tool kits are white tagged and placed back in inventory racks to be stored or shipped to the customers.
After gathering this information, our team had to express the information in terms of measurable data that provided the team with an accurate understanding of the problem and how to solve it.

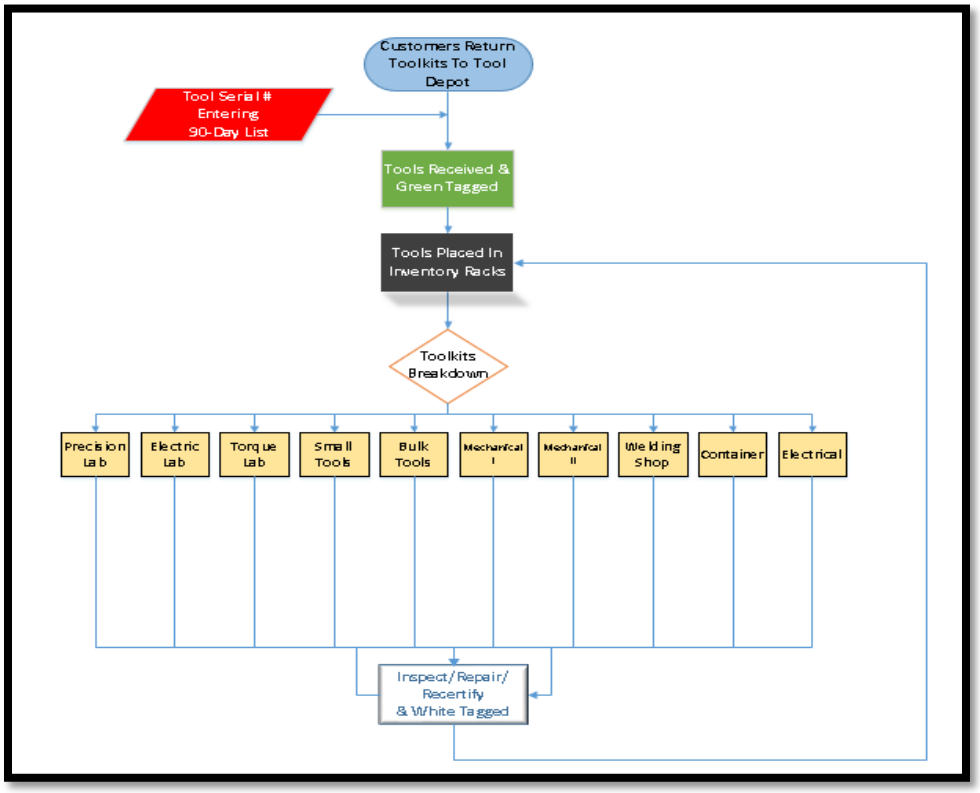
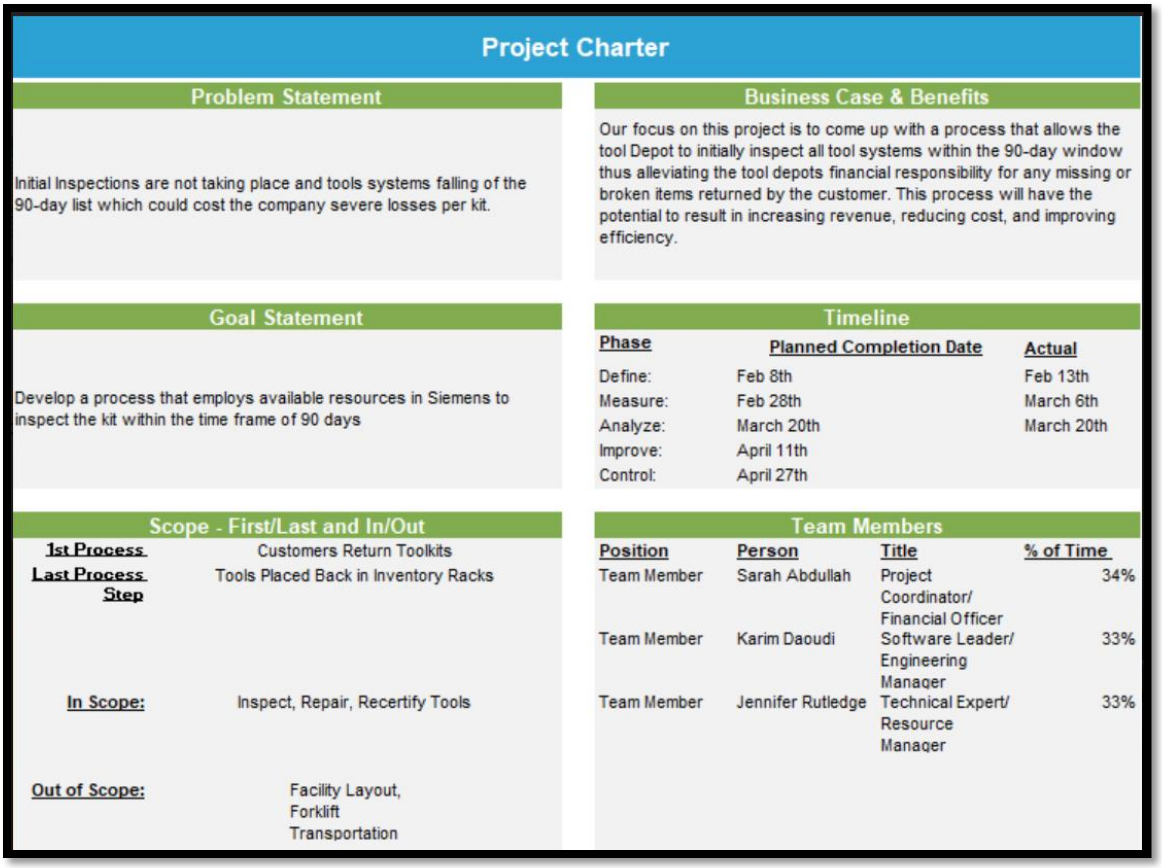


Figure 7: Current Process Flow Chart



Project Charter

Problem Statement

Initial Inspections are not taking place and tools systems falling of the 90-day list which could cost the company severe losses per kit.

Business Case & Benefits

Our focus on this project is to come up with a process that allows the tool Depot to initially inspect all tool systems within the 90-day window thus alleviating the tool depots financial responsibility for any missing or broken items returned by the customer. This process will have the potential to result in increasing revenue, reducing cost, and improving efficiency.

Goal Statement

Develop a process that employs available resources in Siemens to inspect the kit within the time frame of 90 days

Timeline

Phase	Planned Completion Date	Actual
Define:	Feb 8th	Feb 13th
Measure:	Feb 28th	March 6th
Analyze:	March 20th	March 20th
Improve:	April 11th	
Control:	April 27th	

Scope - First/Last and In/Out

1st Process	Customers Return Toolkits
Last Process Step	Tools Placed Back in Inventory Racks
In Scope:	Inspect, Repair, Recertify Tools
Out of Scope:	Facility Layout, Forklift Transportation

Team Members

Position	Person	Title	% of Time
Team Member	Sarah Abdullah	Project Coordinator/ Financial Officer	34%
Team Member	Karim Daoudi	Software Leader/ Engineering Manager	33%
Team Member	Jennifer Rutledge	Technical Expert/ Resource Manager	33%

Figure 5: Define Step - Project charter

4.2.1 SIPOC

The effective tool to utilize in process mapping is SIPOC. SIPOC is an acronym that stands for suppliers, inputs, process, outputs, and customers. In other words, SIPOC is a classical tool that summarizes the inputs and outputs of one or more processes in a table form. The table form is beneficial since it simplifies the processes flow from the suppliers to the customers.

- Suppliers: External Customers
- Inputs: Returned products to inspect
- Process: Flow Chart (Figure 7)
- Outputs: Repaired products
- Customers: Internal and External Customers
  (Video projection – Khalid Adeel)

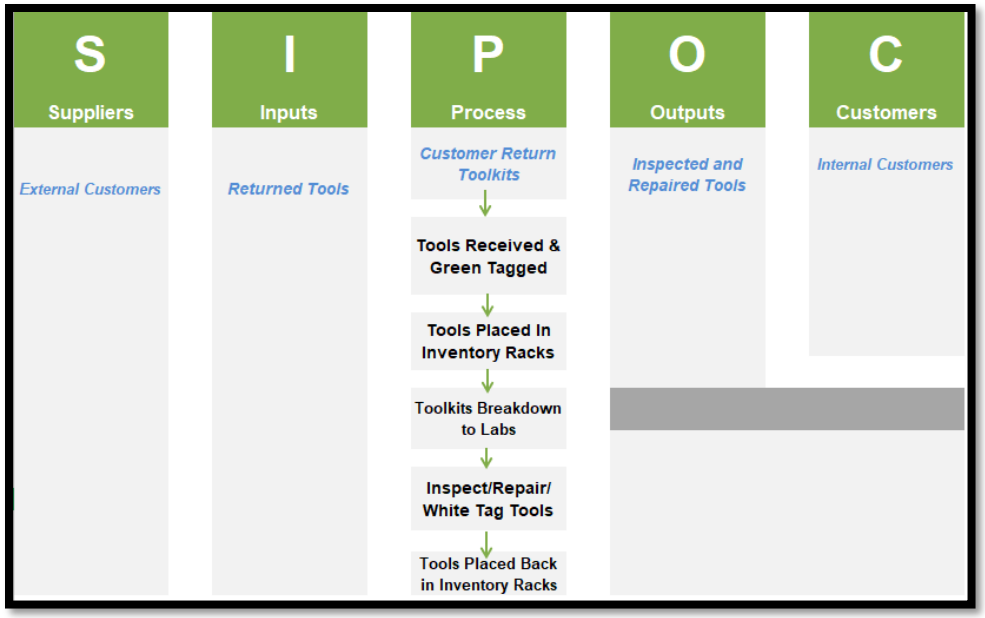


Figure 6: Define Step - SIPOC

4.3 MEASURE PHASE

Measure is the second phase of the implementation process. In this phase, our project team really began to understand how the process performs, looked for the factors causing the issue, created a plan to collect data, ensured the data is credible, and updated the project charter.

For the first stage, our team established the baseline of the process prior to making any modifications. The purpose of the baseline is to develop a criterion to measure the improvement of the process. Moreover, after the project is completed, the baseline is a useful standard since it serves as a key factor to determine whether significant improvements in the process have been made. After that, our project team determined how to collect data by considering certain aspects such as the location of the data collection, the size of the data, and the members in charge of the data collection. Once the data plan was determined, we began to collect the data. In our case, the data was collected at the Siemens facility from the 90-day list for the months of June through December 2018. The data contained the kit's serial/SKU number, the kit description, the date received, and the date due. Additionally, we requested a report of adjustments made to inventory when an item was found to be lost or broken during the refit process. When this report was requested, we found out Siemens does not keep track of inventory adjustments made based on specific serialized kits. We were told that we could get a report containing all the refurbishment items placed and that the specific serial numbers of the kits each purchase order was for, could be included in the report. The last stage of the measure phase was to update the project charter since more details will be incorporated because of the data collection part. The next step was to thoroughly examine the process, visually inspect the data, brainstorm potential causes of the problem, and to verify the causes of the problem. This was implemented in the "Analyze Phase."

4.3.1 DETERMING THE BASELINE

To determine the baseline, we obtained copies of the 90 list for the months of June 2018 – January 2019. The first step was to determine what kits were checked in during each month. Using serial numbers as our data points, we looked at the list for each month and compared it to the list from the next month. If the serial number was in first month but not in the second month, we determined that the kit was inspected in that first month. For example, to determine what kits were inspected in June, we would search the July 90 day list for the specific serial number. If that serial number was listed in June but not listed in July, we knew that the kit was removed from the list meaning it was inspected.

Once we determined which kits were inspected in each month, we needed to determine which of those kits were inspected outside of the 90-day window allowed by the contract. This was needed so that we could determine the actual cost of allowing a kit to fall out of the allotted time for inspection. This was done by comparing the kits inspected each month with the due date of each kit. Once again kit serial numbers were used to make sure that we were properly noting the due dates of each kit.

After determining the kits that were late, we needed to assign a cost to the late kits. This was done by using a separate group of data this time provided in refurbishment orders. To make sure the dollar values we obtained were accurate, we eliminated all line items associated with disposable items as these are factored into the rental cost of the kit. The durable good line items were the only ones we needed for our analysis.

From the list of over 26,000 items ordered to replace items in kits, we once again used the serial numbers as well as the month the refurbish order was placed, to identify all the line items that were ordered to replace missing items in kits checked in outside of the 90-day window. From the data we gathered we were able to come up with the following values seen on the table below.

Table 2: Dollar Value of Refurbishment Orders Outside of 90 Day Window

	Verified Per Month	Late Verified	Late	% Late	Dollar Value of Refurbish Items on Late Kits
June	752	165	0.219414894	21.9%	$31,282.19
July	529	151	0.285444234	28.5%	$2,608.84
August	391	102	0.260869565	26.1%	$9,687.89
September	346	207	0.598265896	59.8%	$118,764.16
October	203	131	0.645320197	64.5%	$45,092.31
November	59	37	0.627118644	62.7%	$25,693.24
December	571	390	0.683012259	68.3%	$61,957.94
Total					**$295,086.57**

As previously mentioned, Siemens has seasonal business. The higher percentage of kits being checked in outside of the 90-day window (Late column) can be attributed to the tool depot being busy and the incoming kits being pushed to the side to get other kits out the door to customers who need them. Even with seasonal business, we feel that this number is higher than it should be and allows great room for improvement.

Additionally, $295,086.57 seemed high to us and since we did not have anything to compare it to, we verified it with Siemens management and were told that it seemed correct. Since they do not track this specific metric, it was impossible to know for sure.

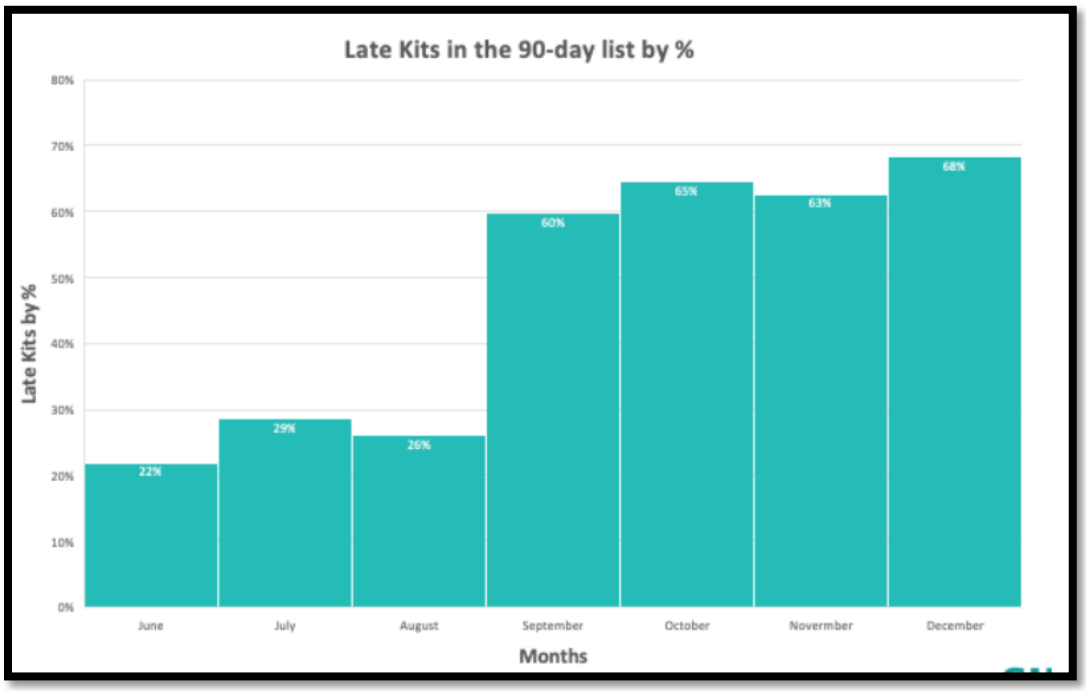


Figure 8: Percentage of Kits Checked in Late (Outside of 90 Day Window)

4.4 ANALYZE PHASE

Analyze is the third phase of the implementation process. In this phase, the project team thoroughly examined the process, visually inspected the data, brainstormed potential causes of the problem, verified the causes of the problem, and updated the project charter.

The first stage of the analyze phase is to examine the process. This was done by performing a process analysis. Using the Process Flow Chart (Figure 7), we examined our process based on four criteria:

- **Rework Loop**: A Rework Loop is a situation where a step in a process is repeated to correct a defect; also known as backtracking. Rework Loops are work that must be done over and over. They often become an accepted part of the process as people get used to them over time. When the team needed to find Rework Loops, we looked for places

where large amount of work (sets and kits) moved back in the process (tool depot) to be refurbished.

- **Redundancies**: Redundancy is when the same steps are done more than once in a process. To reduce Redundancy, we looked for limitations causing multiple entry of the same data or materials.
- **Bottlenecks**: A Bottleneck is a step in the process where the process is limited in the volume it can handle. This is often the result of specialization, task imbalance or other constraints on capacity. Bottlenecks constrain the process and limit the ability of the process to flow at the rate of customer demand.
- **Handoffs:** A Handoff is when a product or item "changes hands" between individuals or departments that create opportunities for something to be mishandled. Handoffs are prone to adding defects to a process. It creates the opportunity for missed communication around requirements that can lead to additional inefficiency.

After examining the process, the next stage was to brainstorm the causes of the problem. To do that, our team collaborated to gather a list of ideas using The Cause and Effect Diagram. The Cause and Effect Diagram consisted of lines and symbols designed to represent a meaningful relationship between an effect and its causes. This diagram helped our project team to narrow the list of the possible causes down until it reached the root of the problem. The left side this diagram depicts the main causes as well as the sub-causes within each category. For instance, the operators are one of the main causes. In our case, the sub-causes can be the following: The 90-Day list is low priority since the operators have other work to complete, limited number of workers as Siemens has only two operators to inspect the kit, and lack of cross training/communication among the operators. On the other hand, the right side of the diagram represents our main problem which is not inspecting toolkits within the 90-Day time frame. After completing the causes and the sub-causes within each category, our team eliminated the non-causes. This was done by removing the ideas that everyone agreed would not cause the problem. After that, the project team implemented a verification procedure to ensure that the proposed cause is the main source of the problem. Our team decided that the verification procedure can be based on **the 5 Whys** Analysis.

4.4.1 5 WHYS ANALYSIS

The 5 Whys is an interrogative technique utilized to examine the cause and effect relationship underlying a problem. The main goal of this technique is to determine the root cause of a problem by repeating the question "Why" for each cause. After that, each answer forms the basis of the next question. Once the fifth iteration is reached, the root cause of the problem is derived. Treating the problem from the root cause is beneficial for any process since it allows successful resolution and a permanent fix of the issue. In our case, we analyzed each cause separately using the 5 Whys analysis as shown in this example:

Problem Statement: Missing kits in inventory

- Why missing kits? Customer doesn't package kit properly and ships kit incomplete
- Why? Customer saving time, consolidates smaller kits into a larger kit
- Why? Because they were in a hurry to leave the job site

Problem Statement: Wrong Rental Item Shipped Back to Siemens

- Why? The wrong item was pulled from inventory
- Why? The Item pulled from inventory was mislabeled
- Why? The supplier mislabeled the item prior to shipping it to Siemens
- Why? The individual applying labels to the products at the supplier placed the wrong label on the product
- Why? Labels for different orders are pre-printed and it is easy to apply the wrong label

Problem Statement: 90-Day list not being a priority

- Why 90-day list is not priority? Because the emphasis is not placed on kits coming in but kits going out, fulfill customer's orders
- Why? Don't have a system that checks kits in
- Why? It costs a lot of money and time to be implemented

After conducting the 5 Whys Analysis for the causes, the main root cause resulting in late toolkits inspection was the 90-Day list low priority under the operators' category. This is because Siemens puts emphasis on going out orders instead of coming in kits from customers.

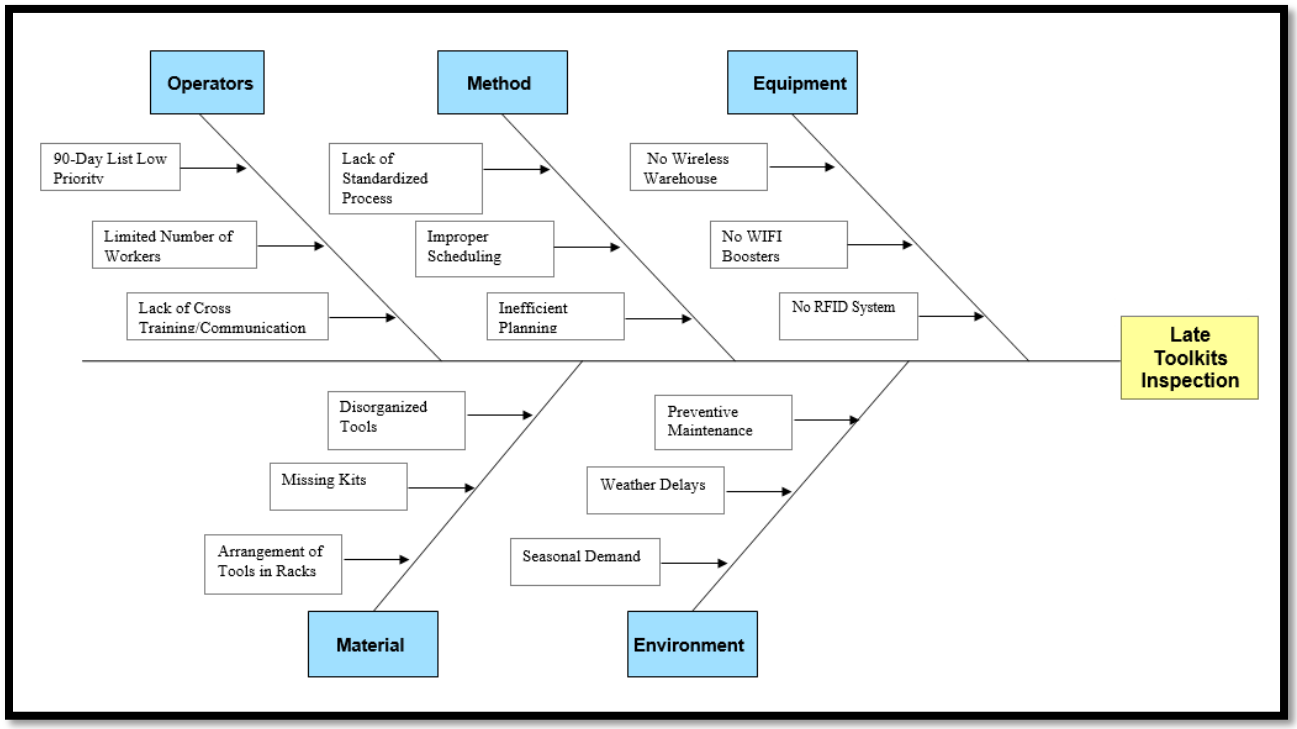


Figure 9: Cause & Effect Diagram

Table 3: 5 Whys Table

5 Whys									
Why 1		Why 2		Why 3		Why 4		Why 5	
Why?	Because	Why?	Because	Why?	Because	Why?	Because	Why?	Because
Why missing kits?	Customer doesn't package kit properly and ships kit incomplete	Why customer ships kit incomplete?	Customer saving time, consolidates smaller kits into a larger kit	Why customer saving time?	They were in a hurry to leave the job site				
Why wrong rental item shipped back?	Wrong item was pulled from inventory	Why wrong item was pulled from inventory?	The item pulled from inventory was mislabeled	Why the item was mislabeled?	The supplier mislabeled the item prior shipping it	Why the supplier mislabeled the item?	The individual applying labels to products placed the wrong label on the product	Why did he place the wrong label on the product?	Labels for different orders are pre-printed and it is easy to apply the wrong label
Why the 90-Day list is not a priority?	The emphasis is not placed on kits coming in but going out to fulfill customer's	Why the emphasis is not placed on kits coming in?	No system that checks kits in	Why there is no system that checks kits in?	It costs a lot of money and time to implement it				

The last stage was to update the project charter with additional information and results that included the analysis methods utilized and the major cause of the problem in the Analysis Phase. During the next phase "Improve", the project team brainstormed solutions that could resolve the issue, selected the practical solutions, developed maps of processes based on different solutions, selected the best solution, implemented the solution, and measured the improvement.

4.4.2 A SET AND B SET

4.4.2.1 A SET

A Set is the largest tool system available to rent from FSPA. A Set is a full truck sized container which contains hundreds of tools and sub-kits. The tools range from sockets and hand tools to large pneumatic tools. Many of the "specialty" instruments in an A Set need to be re-calibrated and issued certifications of conformance after they return from the field. It is during the testing and certification processes that returned A Sets spend the most time waiting. Using the current process, on average it takes 12 business or 16 calendar days for everything in an A Set to be inspected, tested, certified, and returned to the container so it can be white tagged. It is during this process where bottle necks occur in the labs and A Set's fall out of the 90-day window for inspection. Since A Sets require the most attention during refurbishment, it is fitting that the group decided to delve deeper into the costs associated with A Sets being refurbished outside of the 90-day window.

Figure 10: A Set

After calculating the value of refurbishment items placed for kits checked in outside of the 90-day window, the group wanted to consider bringing on additional employees to perform an initial assessment of returned tool kits. Using wage values provided by Siemens we were able to calculate the cost of additional workers that could be used strictly to assess the returning kits. After speaking with both warehouse workers and department supervisors, we were informed that the only reason that returning kits are not initially assessed is because workers do not want to assess a kit, then put it back in the warehouse only to get it out when it is time for the refurbishment and certification process.

When discussing our options for solutions, the group needed time studies for completing both an initial assessment and a refurbishment/certification. The group attempted multiple times to complete time studies for the two different processes but eventually had to settle for data provided by Siemens for the processes. The data provided by Siemens can be found in the table below. For in depth analysis, we decided to concentrate on the two kits which cost the most money when refurbishing outside of the 90-day window.

Table 4: Wage and Time Data for A and B Sets

	Time to Refurbish/ Certify (Days)	**Time to Assess (Hours)**	**Contractor Wage per Hour**	**Total Assessment Cost**
Kit A (7800198)	12	24	$20	$480
Kit B (78010797)	6	8	$20	$160

For the rest of this paper the term assess will be used to describe the process of verifying that the tool is present in the tool kit. This requires taking an inventory checklist and making the tool as being returned and in decent condition. The time required to do this was determined to be 16

hours but often, there are other kits and sub-kits that are thrown inside the container and must be sorted out before the A Set can be assessed. Because of this, the group settled on adding an additional eight hours of time to assess the A Set's.

The quantity of A Set tool kits that are currently in the facility waiting for assessment is 11 and nine of those are already outside of the 90-day window. Siemens has two employees that oversee turning the kits over by inventorying the tools and taking all items that need to be inspected and certified to their respective shops for testing and maintenance. Our group was given a time of 12 days from start to finish for an A Set to be completed. The employee does not work straight through but rather works in stages. After opening the container, the employee removes all items that need to be inspected or certified such as calibrated items, torque items, electronic items, and any other breakables or items that could potentially be out of tolerance and transports them to the various labs in the facility where testing and inspections take place. The employee then proceeds to verify each remaining item in the tool system. The remaining items include, sockets, wrenches, straps, jacks, PPE items, and various other items that can be verified by brief visual inspection. Once the tested/certified items are completed in their respective shops, the items are then returned to the Conex and the refurbishment process is complete when kit is green tagged. It is important to note that more than one A Set can be worked on at the same time due to the lag time spent waiting for items requiring testing/certification to be returned however, A Set's are large, and space is sometimes hard to find.

4.4.2.2 SET B

B sets are smaller and have a higher turnover time. Currently, there are 16 B Sets at the FSPA. While B Sets are also housed in a container, they are much smaller and can be refurbished in approximately half the time. Interestingly, the group found that B Sets rarely make it over a month on the 90-day list as they turn over quickly. For the months of June to December, B Sets had two complete inventory turns telling the group that they did not have time to fall out of the 90-day window before they were needed for another order.

Figure 11: Set B

4.4.3 CURRENT PROCESS

The current process for tool system verification allows each department to verify tool systems when they are able. While investigating the current process, the group was told that each department or lab is responsible for their sets as well as the A Set and B Set's that need certification.

Currently tool sets are not allowed to be allocated to an order unless it is white tagged. Sometimes the need to allocate sets to an order is the driving force behind the kits being refurbished in a timely manner.

Currently, when a set is retuned it is green tagged and put on the inventory racks. Since FSPA is ISO 9000 certified, we raised the question of non-conforming items (green tagged sets) stored in inventory alongside white tagged, customer ready items. Management informed the group that because this was their process, they could store the green and white tagged kits together.

Once the kit is put into inventory with a green tag, it shows in the system as awaiting review. This allows anyone to look up any part number and see how many kits are available and how many are in house but green tagged. Kits are turned over or refurbished as soon as Siemens can get to them. Since they are subject to increased seasonal volume such as outage season, kits can wait on the NDL past the allowed window. When it is time to refurbish an A Set, it usually takes an average of 16 days from start to finish based on the schedule of labs that must do certification, testing and calibration. The diagram below illustrates the current process.

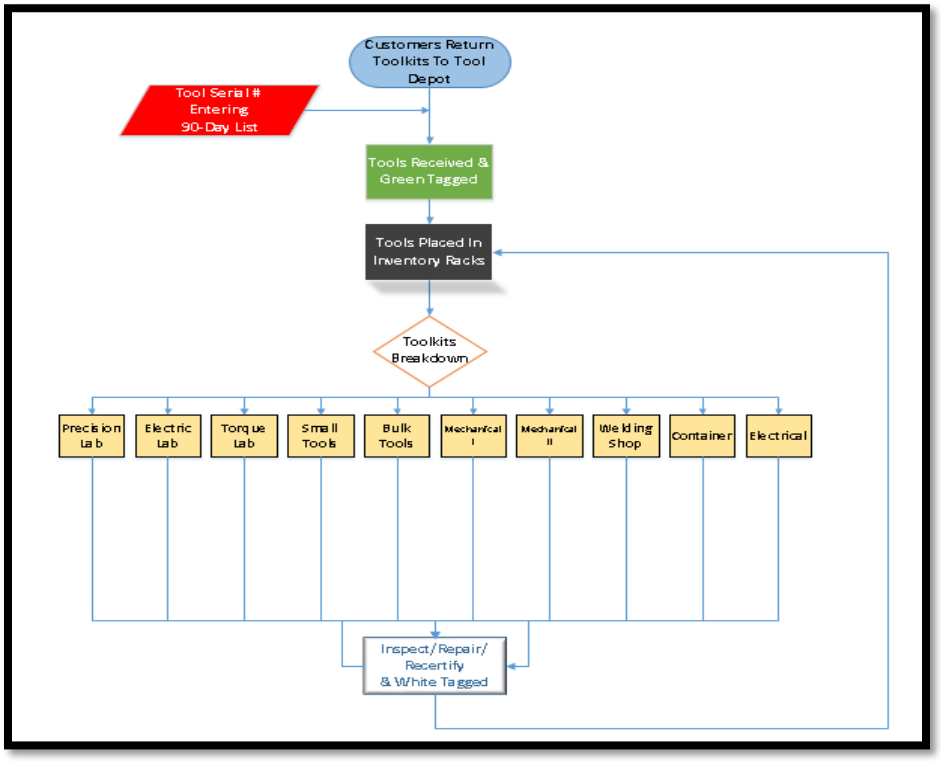


Figure 12: Flow Chart for Tool Systems Returning to Siemen

4.4.4 COST OF VERIFYING "A SET" OUTSIDE OF WINDOW

After reviewing the kits that cost the most money in refurbishment orders, it was obvious that anytime an A Set was verified late, the order placed to replace any missing or damaged durable goods was large. The group decided to look closer at this and a table was created using the serial numbers of the A Set's that were returned to the FSPA.

Table 5: A Set's Retuned from June-December

Serial Number	Date Received	Due Date	June	July	August	September	October	November	December	Cost
10000079	6/5/2018	9/3/2018	X	X						
10000062	6/11/2018	9/9/2018	X	X	X	X	X	X	X	
13508021	6/12/2018	9/10/2018	X	X	X					
10000052	6/13/2018	9/11/2018	X	X	X					
10000066	6/19/2018	9/17/2018	X							
13508020	6/19/2018	9/17/2018	X	X	X	X	X			$12,557.75
10000064	6/21/2018	9/19/2018	X	X	X					
10000076	7/19/2018	10/17/2018		X						
10000065	8/22/2018	11/20/2018			X	X	X	X	X	$19,836.39
10000071	9/27/2018	12/26/2018				X	X			
10000073	10/2/2018	12/31/2018					X	X		
10000078	10/4/2018	1/2/2019					X	X		
10000063	10/8/2018	1/6/2019					X	X		
10000079	10/11/2018	1/9/2019					X	X		
10000061	10/29/2018	1/27/2019					X	X		
10000055	11/19/2018	2/17/2019						X	X	
10000063	11/27/2018	2/25/2019						X	X	
										$32,394.14

As seen in the table above, from the months of June through December 2018, there were three A Set's (as shown in red) that were late and checked in outside of the 90-day window. Serial number 10000062 is late but as it was not refurbished during the period we analyzed, we do not have a cost associated with it. We do have a total value of items that the FSPA paid to replace; $32,394.14.

As a solution to our problem, our group decided to analyze these specific numbers in the hopes that there was justification for hiring an additional employee to work in receiving and check in tool systems as they are returned. Our thought was that the new employee would be there to strictly "assess" kits as they are retuned to FSPA.

4.4.5 INPUT ANALYZER

To determine the distribution of returning A Sets, the group used the Arena Input analyzer. To determine the interarrival times of the A Sets, the group used the 90-Day List which contained the arrival date of each serialized A Sets. For the service times of each kit, the group used refurbishment report which noted the dates that purchase orders were placed and subtracted 12 business days from the date the order was placed to make up for the time spent refitting the kit. This gave us an approximate service date. The data was saved in a text file and loaded into the Input analyzer which then gave us a distribution summary and histogram of the data in the input text file.

- Below are the fitted histogram and the distribution summary of the adjusted data for the arrival times of the A-sets returned by customers. Similarly, the distributions were obtained using the input analyzer for the arrival times of the B-Set Kits.

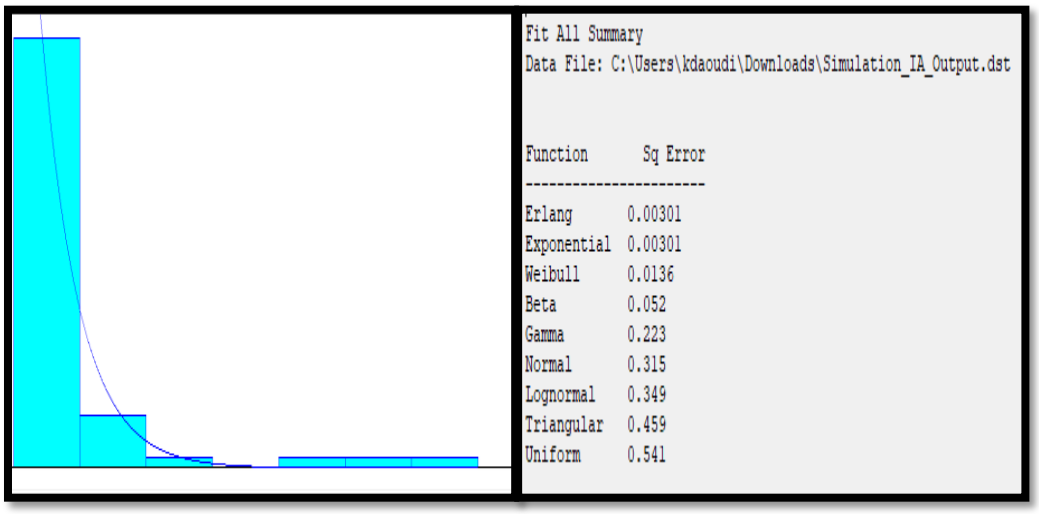


Figure 13: Adjusted Arrival Times (A Set)

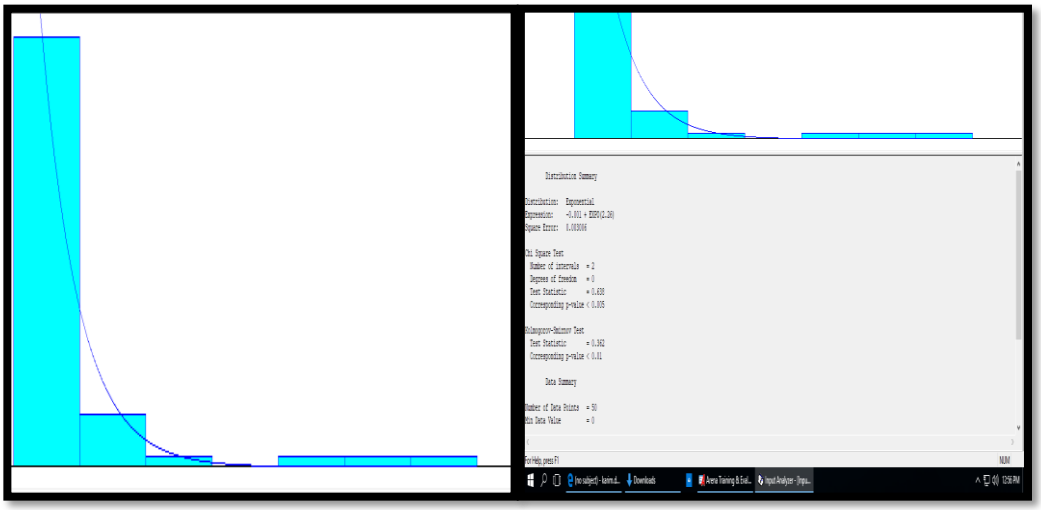


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Figure 14: Adjusted Arrival Times (Set B)

- The following fitted histogram and distribution summary is the Service time that involves both types of kits.

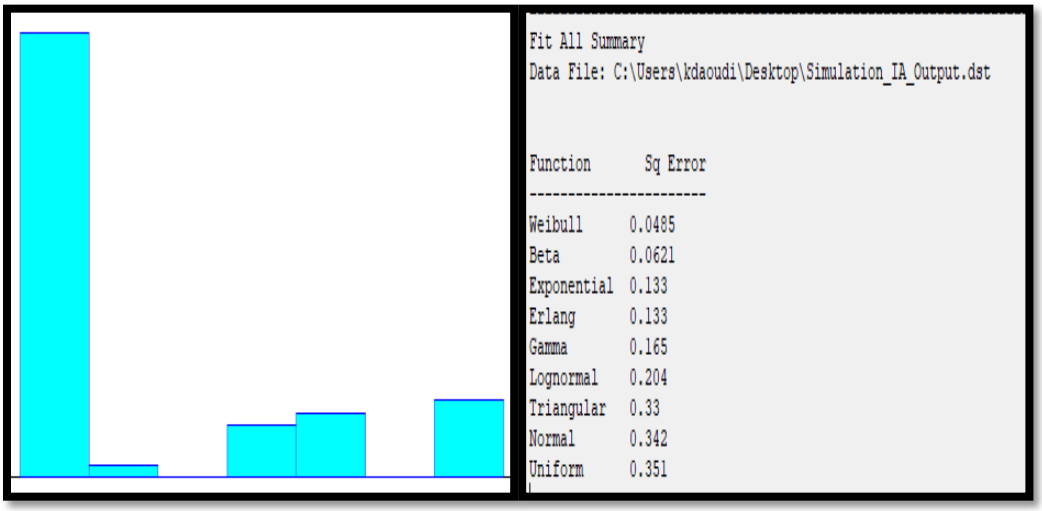


Figure 15: Service Time

4.5 IMPROVE PHASE

The fourth phase of the implementation process was the Improve Phase. In this phase, the project team brainstormed solutions that could resolve the issue, selected the practical solutions, developed maps of processes based on different solutions, selected the best solution. Normally this phase is where a solution is implemented but we could not implement as we are not in control of this process. This phase also contains the measure aspect where the new solution is measured but this portion will also be left up to FSPA.

The first stage was to brainstorm possible solutions that can resolve the problem. The project team generated, and quantified potential solutions based on a set of tools and techniques. After generating a list of solutions, the project team then selected the practical solutions based on a Weighted Criteria Matrix (The Decision Matrix).

The Weighted Criteria Matrix is a decision-making tool that evaluates potential options against a list of weighted factors. Each solution is given a score based on the listed factors. The values are added up and each solution is given a total value. The solution with the highest value is the solution that should be implemented.

Table 6: Weighted Criteria Matrix

Weighted Criteria Matrix									
Prioritization Criteria	Value	Hire A Lab Employee	Score		Inventory Holding Area	Score		Initial Assessment	Score	
Impact on Staff	6			0			0			0
Time To Inspect	7			0			0			0
Time To Implement	8			0			0			0
Cost To Implement	9			0			0			0
Impact On Project	10			0			0			0
Total				**0**			**0**			**0**

It is recommended for the project team to develop maps of processes based on different solutions known as "To-Be Maps." These maps are useful in developing the team potential for the next processes. They can also be utilized as a reference for training employees in the new processes.

After selecting the best solution among the practical solutions, it is beneficial to complete a PDCA cycle. PDCA cycle is an acronym that stands for Plan, Do, Check, and Act. The PDCA method is a repetitive four-step management utilized for the control and continuous improvement of processes. The method of selection works by implementing each practical solution to the PDCA cycle. After that, the project team selects and implements the solution that generates the highest improvement in the process.

The last stage in the measure phase is measuring improvement. In this stage, the project team evaluates the effect of the best solution selected on the level of improvement of the process. If the solution led to a significant measurable improvement, then the project team can move to the Control Phase. However, if the solution did not create any improvement, the project team must review the practical solutions available in addition to the PDCA cycle results to recognize the issue.

4.5.1 SOLUTION ONE - ADDING KIT ASSESSOR

For the first solution the team questioned if the returned tool system had to be brought into the building and put into inventory. What if the tool kit could be assessed when it entered the building and not put on the shelf? With an interarrival time of 11 days, if someone were to "assess" the tool system upon arrival, the consequent time required to do the rest of the process would be inconsequential. To determine if there was value in this solution the team decided to use data and values from A Sets that were reset outside of the 90-day window.

Table 7: Cost of Adding a Kit Assessor

Cost of Receiving Employee to Assess Kits				
	Total Value	**Hourly Wage**	**Yearly Salary**	**Out of Pocket Cost**
All Late Verified Tool Systems	$295,086.87	$ 20.00*	$ 52,000	$ 0.00
All Late Verified A Set's	$ 32,394.14	$ 20.00*	$ 41,600	$ 9,205.86*

**values were changed due to the proprietary nature of salary information*

For a tool system to be removed from the 90-day list, a simple once over must be performed. Unlike the cumbersome refurbishment process, an assessment would only entail verifying that the items in the tool system are there and appear to be in acceptable condition. According to the data provided by Siemens, this process can be completed for A Set in 24 hours and B Set in half that. Based on information presented earlier in the paper, there are 16 B Sets which turned over twice in the period analyzed. Simple calculations would suggest that the assessor could verify the B Sets retuned to Siemens in 6.4 weeks if he or she did nothing but assess B Sets. There were 17 A Sets that were received during the time we analyzed meaning that an assessor would spend approximately 10.2 weeks assessing A Sets. This would allow for an assessor working in the receiving department to help in other areas or assess other kits when not assessing A Sets or B Sets.

The table above shows the out of pocket cost for FSPA to hire an assessor. Note that not all the late A Sets were checked in during our period of analysis, so it is possible that once the late A Sets were checked in, the purchase orders placed to refurbish them would cover the remaining $9,205.86 of the assessor's salary.

4.5.2 SOLUTION TWO - ADDING LAB TECHNICIANS

Queuing Theory is the mathematical study of waiting lines that uses queuing models to represent various types of queuing systems. It is part of the everyday life of any individual. For instance: People wait at a bank, vehicles wait to be unloaded, and machines wait to be repaired. Therefore, the purpose of queuing theory is to determine and streamline staffing needs, scheduling, and inventory to improve the overall effectiveness of a queuing system. A queue is where customers wait before being served. There are three operating characteristics in a queue which are as follows:

- Arrival Rate (λ): The mean number of arrivals per unit time (usually per hour/day)
- Service Rate (μ): The mean number of customers that can be served at 100% utilization by each server per unit time (usually per hour/day)
- Number of servers: There are two types of servers

-Servers in parallel: Servers that provide the same type of service and a customer need only to pass through one server to complete service
-Servers in series: If a customer must pass through multiple servers before completing service

Moreover, each queuing system is described using a standard notation which is The Kendall - Lee Notation. It is described by six characters: 1/2/3/4/5/6

- 1: The first characteristic specifies the nature of the arrival process. The following standard abbreviations are used:
  M = Interarrival times are exponentially distributed
  D = Interarrival times are deterministic
  Ek = Interarrival times are Erlangs with shape parameter k
  G = Interarrival times are governed by some general distribution.
- 2: The second characteristic specifies the nature of the service times: The following standard abbreviations are used:

M = service times are exponentially distributed
D = service times are deterministic
Ek = service times are Erlangs with shape parameter k.
GI = service times are governed by some general distribution

- 3: The third characteristic is the number of parallel servers

- 4: The fourth characteristic describes the queue discipline:
  FCFS = First come, first served
  LCFS = Last come, first served
  SIRO = Service in random order
  GD = General queue discipline

- 5: The fifth characteristic specifies the maximum allowable number of customers in the system: Finite or Infinity
- 6: The sixth characteristic gives the size of the population from which customers are drawn: Finite or Infinity

For our queuing theory analysis, we studied separately two types of toolkits which are the A Set and the B Sets shown in Figure x and y. The team collected the data and calculated the arrival time and service time for each Set.

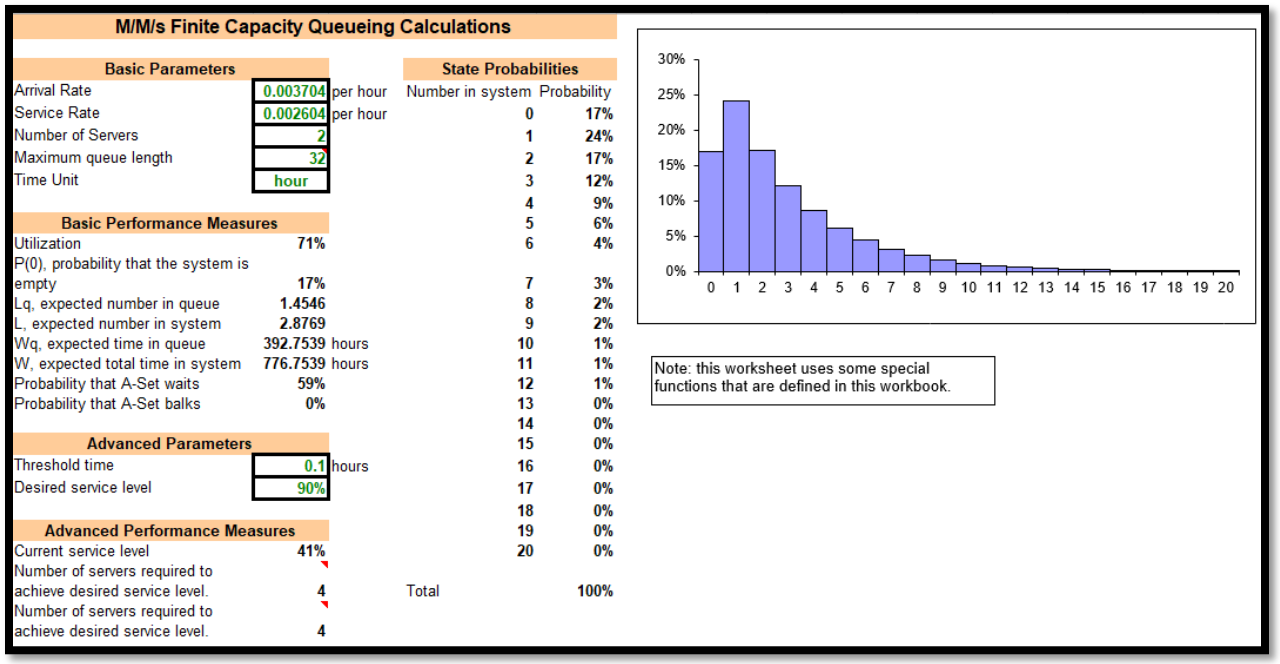
4.5.3.1 A-SET STUDY

The Kendal-Lee Notation for the queuing system of the A-Set is as follows: M/M/2/32/32 (Multiple servers, finite queuing capacity, and finite population)

After collecting the A Set interarrival data and analyzing it using Input Analyzer Software in Arena, we concluded that the arrival data follows an exponential distribution as shown in Figure (19). This is represented by the symbol "M" in the notation. In addition to that, the service data follows an exponential distribution as well represented by the symbol "M" in the notation. The number of parallel servers is two for both the receiving department and the lab shop. In addition

to that, the maximum allowable number of A Sets in the system that can be returned is 18 because of the capacity of the facility. Similarly, the size of the population from which the sample was taken is 32 as well since we included in the study the entire population of A Sets in available in the facility.

The arrival rate of the A Set was calculated to be λ=1/270 per hour since the facility receives one A Set every 11.25 days. This result was converted to hours as shown above for better interpretation of the results. Similarly, the service rate of the A Set was calculated to be μ= 1/384 per hour since it takes 16 days for two Lab Employees to fully inspect one A Set.
Using Excel, we calculated basic performance measures of our queuing system which includes the followings: The utilization percentage, P(0) the probability that the system is empty, Lq expected number of A Sets in the queue, L expected number of A Sets in the system, Wq expected wait time of A Sets in the queue, W expected wait time of A Sets in the system, and finally the percentage of the probability that one A Set waits.



M/M/s Finite Capacity Queueing Calculations

Basic Parameters		
Arrival Rate	0.003704	per hour
Service Rate	0.002604	per hour
Number of Servers	2	
Maximum queue length	32	
Time Unit	hour	

Basic Performance Measures	
Utilization	71%
P(0), probability that the system is empty	17%
Lq, expected number in queue	1.4546
L, expected number in system	2.8769
Wq, expected time in queue	392.7539 hours
W, expected total time in system	776.7539 hours
Probability that A-Set waits	59%
Probability that A-Set balks	0%

Advanced Parameters		
Threshold time	0.1	hours
Desired service level	90%	

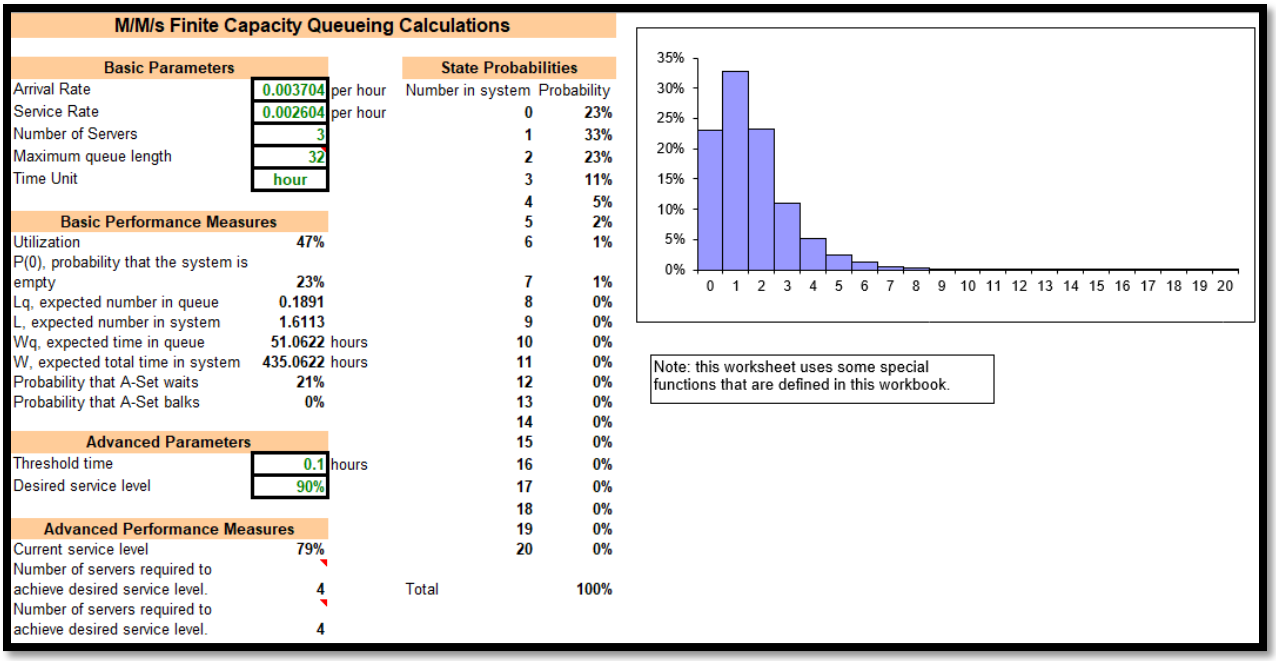
Advanced Performance Measures	
Current service level	41%
Number of servers required to achieve desired service level.	4
Number of servers required to achieve desired service level.	4

State Probabilities	
Number in system	Probability
0	17%
1	24%
2	17%
3	12%
4	9%
5	6%
6	4%
7	3%
8	2%
9	2%
10	1%
11	1%
12	1%
13	0%
14	0%
15	0%
16	0%
17	0%
18	0%
19	0%
20	0%
Total	100%

Note: this worksheet uses some special functions that are defined in this workbook.

Figure 16: A Set Current Queuing System

The proposed queuing system focuses on adding one Lab Employee. The only responsibility of the new employee will be to fully inspect both A-Sets and B-sets immediately after they are return from the customers. This will help both reducing the bottlenecks in the labs and reaching the goal of not missing the 90-Day deadline to bill the customers in case if any shortages are found.



M/M/s Finite Capacity Queueing Calculations

Basic Parameters		
Arrival Rate	0.003704	per hour
Service Rate	0.002604	per hour
Number of Servers	3	
Maximum queue length	32	
Time Unit	hour	

Basic Performance Measures		
Utilization	47%	
P(0), probability that the system is empty	23%	
Lq, expected number in queue	0.1891	
L, expected number in system	1.6113	
Wq, expected time in queue	51.0622	hours
W, expected total time in system	435.0622	hours
Probability that A-Set waits	21%	
Probability that A-Set balks	0%	

Advanced Parameters		
Threshold time	0.1	hours
Desired service level	90%	

Advanced Performance Measures	
Current service level	79%
Number of servers required to achieve desired service level.	4
Number of servers required to achieve desired service level.	4

State Probabilities	
Number in system	Probability
0	23%
1	33%
2	23%
3	11%
4	5%
5	2%
6	1%
7	1%
8	0%
9	0%
10	0%
11	0%
12	0%
13	0%
14	0%
15	0%
16	0%
17	0%
18	0%
19	0%
20	0%
Total	100%

Note: this worksheet uses some special functions that are defined in this workbook.

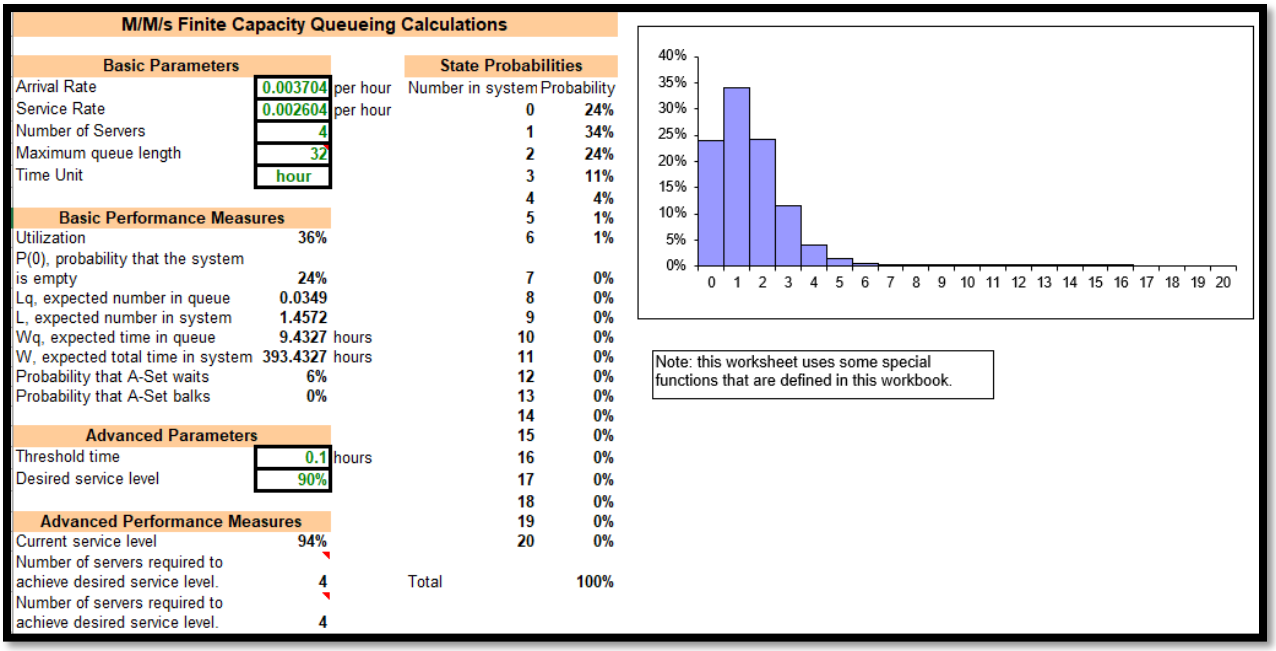
Figure 17: A Set Proposed Queuing System

Results and Interpretations:

After implementing the proposed queuing system in the facility, the following outcomes will be achieved:

- The percentage of the probability that an A Set waits in the system will be reduced significantly from 59% to 21% with a difference of 38% compared to the current queuing system.
- The total expected wait time in the queuing system will be minimized from 392.75 hours to 51.06 hours saving 341.69 hours per A Set inspection.
- The expected number of A Sets in the queue will be reduced from 1.45 to 0.19.
- The probability that the system is empty will increase by 6%

According to the advanced performance measures table on Excel, the number of servers required to achieve a desired service level of 90% or more is four (As shown in Figure 20.)



M/M/s Finite Capacity Queueing Calculations

Basic Parameters		
Arrival Rate	0.003704	per hour
Service Rate	0.002604	per hour
Number of Servers	4	
Maximum queue length	32	
Time Unit	hour	

Basic Performance Measures	
Utilization	36%
P(0), probability that the system is empty	24%
Lq, expected number in queue	0.0349
L, expected number in system	1.4572
Wq, expected time in queue	9.4327 hours
W, expected total time in system	393.4327 hours
Probability that A-Set waits	6%
Probability that A-Set balks	0%

Advanced Parameters		
Threshold time	0.1	hours
Desired service level	90%	

Advanced Performance Measures	
Current service level	94%
Number of servers required to achieve desired service level.	4
Number of servers required to achieve desired service level.	4

State Probabilities	
Number in system	Probability
0	24%
1	34%
2	24%
3	11%
4	4%
5	1%
6	1%
7	0%
8	0%
9	0%
10	0%
11	0%
12	0%
13	0%
14	0%
15	0%
16	0%
17	0%
18	0%
19	0%
20	0%
Total	100%

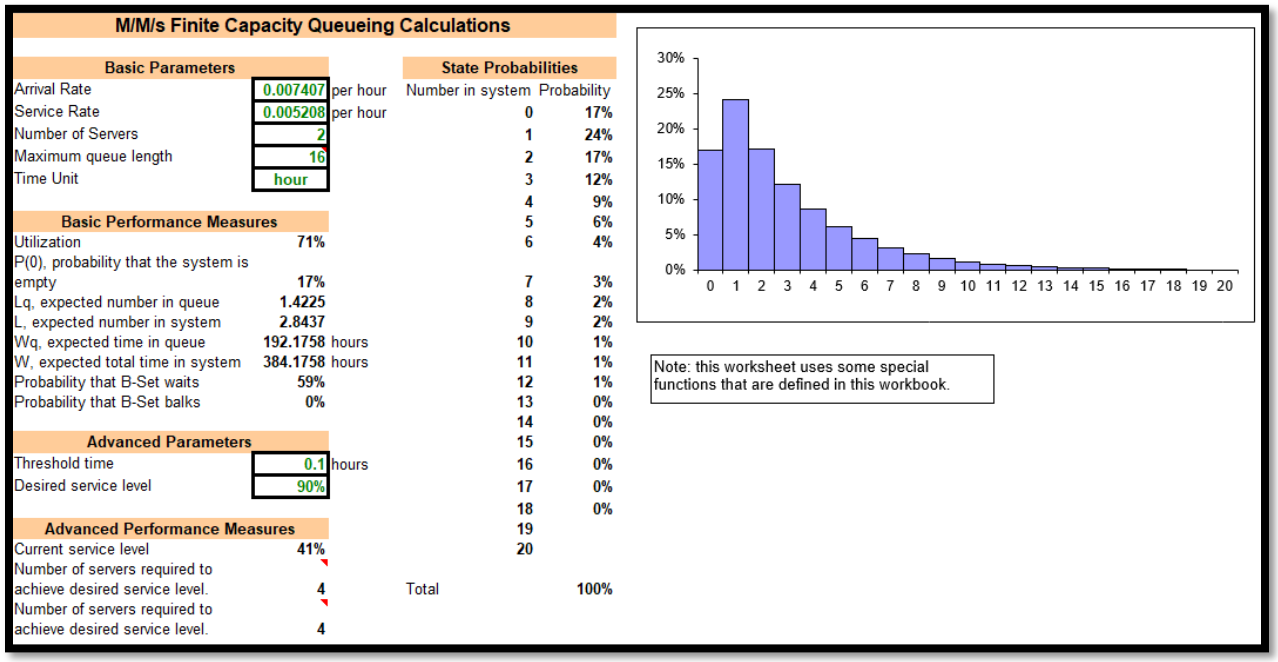
Note: this worksheet uses some special functions that are defined in this workbook.

Figure 18: A Set Proposed Queuing System for a 90% Service Level

Both proposed queuing systems will save the company money as discussed in the engineering economic analysis and time as discussed in this section.

4.5.3.2 B-SET STUDY

The Kendal-Lee Notation for the queuing system of the B Set is as follows: M/M/2/16/16 (Multiple servers, finite queuing capacity, and finite population)
After collecting the B Set interarrival data and analyzing it using Input Analyzer Software in Arena, we concluded that the arrival data follows an exponential distribution as shown in Figure (12). This is represented by the symbol "M" in the notation. In addition to that, the service data follows an exponential distribution as well represented by the symbol "M" in the notation. The number of parallel servers is two for both the receiving department and the lab shop. In addition to that, the maximum allowable number of B Sets in the system that can be returned is 32 because of the capacity of the facility. Similarly, the size of the population from which the sample was taken is 16 as well since we included in the study the entire population of B Sets in available in the facility. The arrival rate of the B Set was calculated to be λ=1/135 per hour since the facility receives one B Set every 5.625 days. This result was converted to hours as shown above for better interpretation of the results. Similarly, the service rate of the B Set was calculated to be μ= 1/192 per hour since it takes 8 days for two Lab Employees to fully inspect one B Set.
Similarly to the A Set Study; using Excel, we calculated basic performance measures of our queuing system which includes the followings: The utilization percentage, P(0) the probability that the system is empty, Lq expected number of A Sets in the queue, L expected number of A Sets in the system, Wq expected wait time of A Sets in the queue, W expected wait time of A Sets in the system, and finally the percentage of the probability that one A Set waits.



M/M/s Finite Capacity Queueing Calculations

Basic Parameters		
Arrival Rate	0.007407	per hour
Service Rate	0.005208	per hour
Number of Servers	2	
Maximum queue length	16	
Time Unit	hour	

Basic Performance Measures	
Utilization	71%
P(0), probability that the system is empty	17%
Lq, expected number in queue	1.4225
L, expected number in system	2.8437
Wq, expected time in queue	192.1758 hours
W, expected total time in system	384.1758 hours
Probability that B-Set waits	59%
Probability that B-Set balks	0%

Advanced Parameters		
Threshold time	0.1	hours
Desired service level	90%	

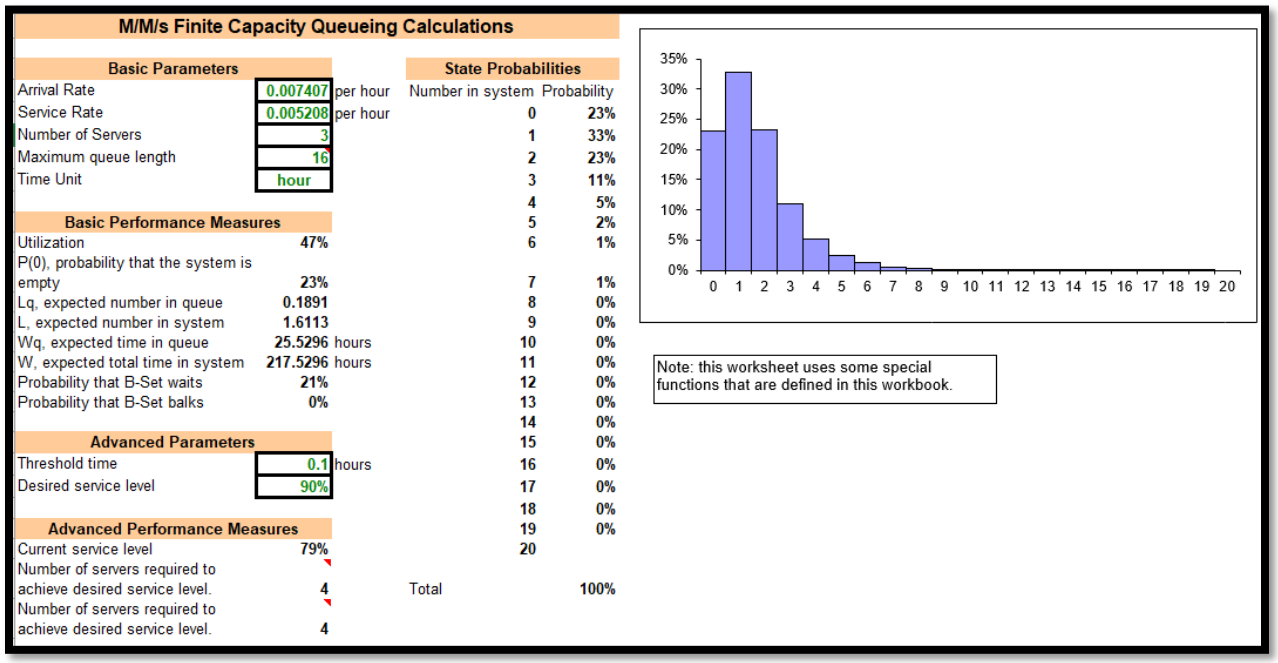
Advanced Performance Measures	
Current service level	41%
Number of servers required to achieve desired service level.	4
Number of servers required to achieve desired service level.	4

State Probabilities	
Number in system	Probability
0	17%
1	24%
2	17%
3	12%
4	9%
5	6%
6	4%
7	3%
8	2%
9	2%
10	1%
11	1%
12	1%
13	0%
14	0%
15	0%
16	0%
17	0%
18	0%
19	
20	
Total	100%

Note: this worksheet uses some special functions that are defined in this workbook.

Figure 19: B Set Current Queuing System

The proposed queuing system focuses on adding one Lab Employee. The only responsibility of the new employee will be to assess both A Sets and B Sets immediately after they are returned from the customers. This will help both reducing the bottlenecks in the labs and reaching the goal of not missing the 90-Day deadline to bill the customers in case if any shortages are found.



M/M/s Finite Capacity Queueing Calculations

Basic Parameters		
Arrival Rate	0.007407	per hour
Service Rate	0.005208	per hour
Number of Servers	3	
Maximum queue length	16	
Time Unit	hour	

Basic Performance Measures	
Utilization	47%
P(0), probability that the system is empty	23%
Lq, expected number in queue	0.1891
L, expected number in system	1.6113
Wq, expected time in queue	25.5296 hours
W, expected total time in system	217.5296 hours
Probability that B-Set waits	21%
Probability that B-Set balks	0%

Advanced Parameters		
Threshold time	0.1	hours
Desired service level	90%	

Advanced Performance Measures	
Current service level	79%
Number of servers required to achieve desired service level.	4
Number of servers required to achieve desired service level.	4

State Probabilities	
Number in system	Probability
0	23%
1	33%
2	23%
3	11%
4	5%
5	2%
6	1%
7	1%
8	0%
9	0%
10	0%
11	0%
12	0%
13	0%
14	0%
15	0%
16	0%
17	0%
18	0%
19	0%
20	
Total	100%

Note: this worksheet uses some special functions that are defined in this workbook.

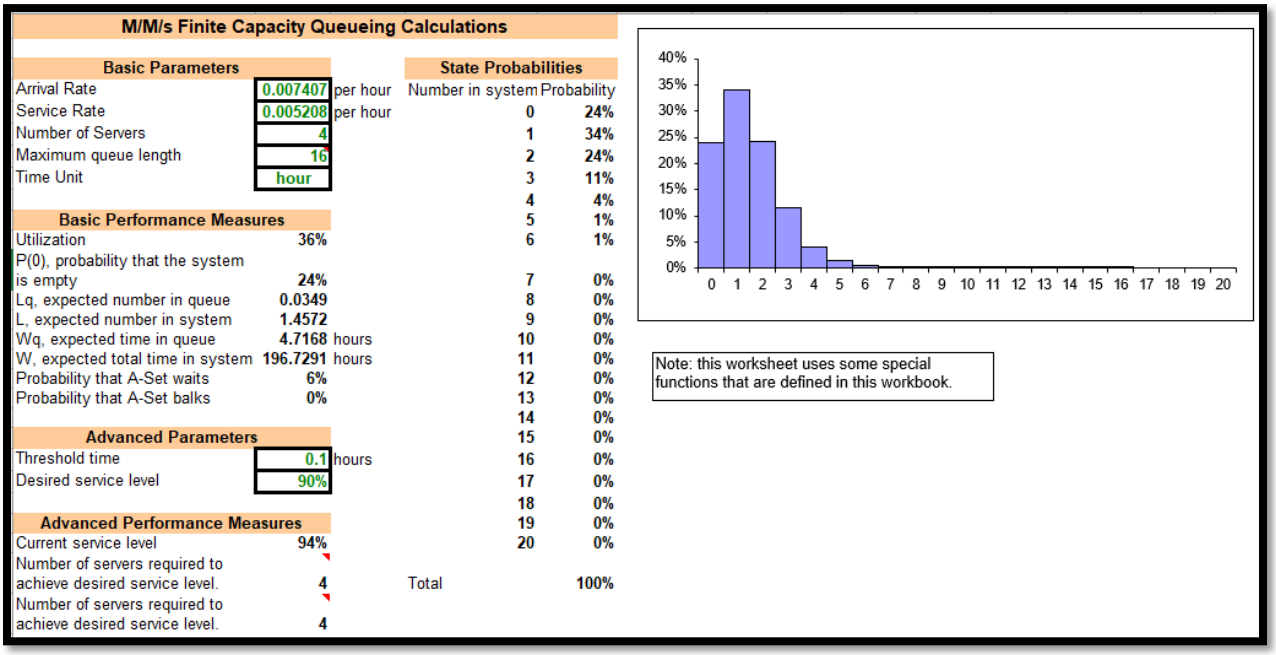
Figure 20: B Set Proposed Queuing System

Results and Interpretations:

After implementing the proposed queuing system in the facility, the following outcomes will be achieved:

- The percentage of the probability that B Set waits in the system will be reduced significantly from 59% to 21% with a difference of 38% compared to the current queuing system.
- The total expected wait time in the queuing system will be minimized from 192.16 hours to 25.53 hours saving 166.63 hours per B Set.
- The expected number of B sets in the queue will be reduced from 1.42 to 0.19.
- The probability that the system is empty will increase by 6%

According to the advanced performance measures table on Excel, the number of servers required to achieve a desired service level of 90% or more is four (As shown in Figure 22.)



M/M/s Finite Capacity Queueing Calculations

Basic Parameters		
Arrival Rate	0.007407	per hour
Service Rate	0.005208	per hour
Number of Servers	4	
Maximum queue length	16	
Time Unit	hour	

Basic Performance Measures		
Utilization	36%	
P(0), probability that the system is empty	24%	
Lq, expected number in queue	0.0349	
L, expected number in system	1.4572	
Wq, expected time in queue	4.7168	hours
W, expected total time in system	196.7291	hours
Probability that A-Set waits	6%	
Probability that A-Set balks	0%	

Advanced Parameters		
Threshold time	0.1	hours
Desired service level	90%	

Advanced Performance Measures	
Current service level	94%
Number of servers required to achieve desired service level.	4
Number of servers required to achieve desired service level.	4

State Probabilities	
Number in system	Probability
0	24%
1	34%
2	24%
3	11%
4	4%
5	1%
6	1%
7	0%
8	0%
9	0%
10	0%
11	0%
12	0%
13	0%
14	0%
15	0%
16	0%
17	0%
18	0%
19	0%
20	0%
Total	100%

Note: this worksheet uses some special functions that are defined in this workbook.

Figure 21: B Set Proposed Queuing System for a 90% Service Level

Both proposed queuing systems will save the company money as discussed in the engineering economic analysis and time as discussed in this section.

4.5.3 SOLUTION THREE – INVENTORY HOLDING AREA

The third solution we propose is an inventory holding area. The inventory holding area is an area where returned tool kits go to be broken down. Currently, the A Sets sit and wait until all the calibrated items are returned from their designated labs. In this solution, the kits would be received as usual but then taken to the holding area where they would be broken down and instrument items taken to receive any required testing and certification. The difference in this

solution and the current process is that instead of waiting for the exact calibrated instruments to be put back in the kit, the remainder of the kit not requiring calibration would be inspected and put on the shelf. This solution would require a change in the way that employees pull the kits because they would pull a verified A Set and then add to it any calibrated sub-kit is ready to be sent out to the customer. This is different from waiting for that specific item to be tested and then returned to the A Set.

4.5.4 WEIGHTED CRITERIA MATRIX

Weighted Criteria Matrix										
Prioritization Criteria	**Value**	**Hire A Lab Employee**	**Score**		**Inventory Holding Area**	**Score**		**Initial Assessment**	**Score**	
Impact on Staff	**6**	Lab Staff would have to train a new employee	7	42	High Learning Curve, reorganization of warehouse	6	36	Train a new employee but an assessor could help in other areas when needed	8	48
Time To Inspect	**7**	Faster but there could still be a bottle neck due to need to inspect other kits	8	48	Faster as there is no wait for shops to calibrate/certify	9	63	Fastest as there in an assessor rather than inspection	10	70
Time To Implement	**8**	Immediately	10	60	Requires an entire change of process as well as chance in warehouse layout	7	56	Immediately	10	80
Cost To Implement	**9**	$30-35/hr to hire a lab tech	7	42	No additional labor required byt the way orders are entered or pick tickets are printed may change	9	81	$20/hr to Hire an Assessor	8	72
Impact On Project	**10**	Improves problem but no added warehouse labor	8	48	Could solve problem completely but would not add labor for seasonal demand	9	90	Solve problem completely with additional labor for seasonal demand	10	100
Total				**240**			**326**			**370**

Figure 22: Solutions Valued in Weighted Matrix

The Weighted Criteria Matrix is a decision-making tool that evaluates potential options against a list of weighted factors. By evaluating alternatives based on their performance with respect to individual criteria, a value for the alternative can be identified. The values for each alternative can then be compared to create a rank order of their performance related to the criteria.

The weighted criteria matrix is constructed with the alternatives listed along one side (Initial Inspection Process, Inventory Holding Area, Wireless Warehouse, hiring a Lab Employee) and the review criteria along the other (Time to inspect and implement, impact on staff and project, and cost to implement). A value box to insert the specific assigned weight is located with each criterion. An evaluation scale is established for the whole matrix. The ranking of the alternative based on its ability to address the specific criteria is inputted into the appropriate cell. The total scores are then available to use in ranking alternatives.

In our case, the highest valued solution is the addition of an assessor (370) while solution two and solution three scored lower.

4.6 CONTROL PHASE

Furthermore, the last phase of the implementation process is the control phase. In this phase, the project team continuously enhances the process using Six Sigma and Lean Principles, ensures that the process is being managed and monitored properly, and expands the improved process throughout the business. The first stage is to continuously enhance the process based on the four principles of value which are Value, Flow, Pull, and Perfection. The principle of value identifies the steps that are of value for the customers. The principle of flow optimizes the process by removing waste in the system. The principle of pull assures that the process responds to the customer request. The principle of perfection is based on continually improving the process until it reaches perfection. These four principles are beneficial and must be implemented in every organization that is seeking success through continuous improvement. Moreover, the project team should monitor and control critical process characteristics. The Control Chart is a useful statistical tool to identify the performance and the variation of business process to indicate if it is in a state of control. The benefits of using a control chart in this stage are as follows: Firstly, to identify process changes and trends over time and to show the effects of corrective actions. Secondly, to monitor the process to identify special causes variation and signal the need to take corrective action when appropriate. The last stage in the control phase is extending the improved process throughout the business. Once the improved process produces favorable outcomes and successful results, it is recommended for the project team to implement the same process to other issues encountered in the organization to create successful business environment.

As we are not Siemens employees, we cannot implement our solution and therefore we did not reach the control portion of our process.

CHAPTER FIVE – RESULTS

After completing a Six Sigma Improvement Process based on the 90-Day List, out group made the following determinations.

Solution One was our optimal solution. This solution provided the best total value by adding a kit assessor to the receiving department. By looking at the data, we determined that the wage paid to the assessor would easily be saved by checking in A Sets within the 90-day window. Since the assessor would only spend half of his or her time assessing A Sets, the remainder of his or her time could be spend working on assessing other kits on the 90-day list.

Table 8: Best Feasible Solution

Weighted Criteria Matrix				
Prioritization Criteria	**Value**	**Initial Assessment**	**Score**	
Impact on Staff	**6**	Train a new employee but an assessor could help in other areas when needed	8	48
Time To Inspect	**7**	Fastest as there in an assessor rather than inspection	10	70
Time To Implement	**8**	Immediately	10	80
Cost To Implement	**9**	$20/hr to Hire an Assessor	8	72
Impact On Project	**10**	Solve problem completely with additional labor for seasonal demand	10	100
Total				**370**

CHAPTER SIX - SUGGESTIONS

6.1 FIFO (First-In, First-Out)

One of the points that was made to our group early on in this process was that the Siemens management wanted to implement FIFO. After thinking about the benefits of FIFO, our group felt that FIFO could potentially help with the 90-day list. While the Siemens warehouse is ideally set up to use FIFO since there is no way to load inventory from the back of the racks so that the new inventory is in the front and able to be pulled first, we believe that we can implement FIFO in another way.

When kits are received and put back into inventory there is a permanent "home" or bin location for them. The bin locations are designated by type and each type of kit is housed with all the other kits of that type. While that is orderly and works well, it makes it virtually impossible to implement a FIFO inventory process. The solution we came up with involves the wireless warehouse that Siemens is already in the process of implementing. With wireless warehouse we recommend getting rid of all permanent bin locations and utilize a method often used in logistics when loading trucks. The method, called "Best Fit", considers the size of the item and the available spaces to put the item. When a kit is ready to be put into inventory, the system would take the volume of the item into account and assign it to a bin. When the item was pulled later, that bin would then be available again. This would help with FIFO because rather than pull items by kit part number, the system could be set to pull by serial number. This would insure that the serial numbers that have been checked in and verified longer would be the first ones pulled. If the system ran this way, employees would have to turn kits over at a quicker pace because that specific serial number would have to be pulled for an order and not just that specific part number.

6.2 CROSS TRAINING

Cross training is an excellent way to shift labor where it is needed. Our suggested solution recommends the addition of an assessor in the receiving department. During the period analyzed, if an assessor was hired, he or she would spend approximately 16 weeks assessing the majors. The remainder of time should be spent assessing kits, but they could also be utilized in shipping or receiving if they were slow. The group originally planned on suggesting cross training as a solution to the late kits on the 90-day list but after reviewing the data, the solution was not strong enough to stand on its own.

CHAPTER SEVEN – CONCLUSION

The purpose of this research project was to reduce the costs incurred by Field Service Products Atlanta. These costs occur when a rental tool set or system, is verified outside of the 90-window stipulated on the rental agreement. Any missing durable goods within the kits become the liability of FSPA to replace out of their budget.

Our group decided to approach this project as a Six Sigma Improvement project because it met all the requirements of such. The dollar value of refurbishment orders placed for kits verified outside the 90-day window was almost $300,000 for the months of June-December. Using that as our problem, we formulated our improvement process.

Our group then began to study and understand the processes that were already in place. We determined that there was no process set in stone and that the 90-day list often fell to the side to accomplish more important tasks like shipping orders. We understood the need to ship and why it should take priority, but we wanted to come up with a solution that did not require an either or, verifying kits or shipping orders to customers.

Before any the processes could be measured, data needed to be gathered and analyzed. For the first step of gathering data, the 90 day lists from the months of June 2018 through December 2018 were compared against each other to determine when a kit was refurbished and thus removed from the list. The dates of kit removal were then compared to the due date and any kits removed from the list after their due date were marked as late.

It was difficult for the group to ask for what we wanted. The metrics we required were not easily and readily available, so the group had to determine how to come up with the data that we needed. This required countless hours using spreadsheets with lots of trial and error. Finally, we had a baseline we were proud of.

The next step was to come up with possible solutions. The group used basic math to determine that with the money being spent on refurbishment orders outside of the 90-day window, labor costs for an assessor could easily be covered. If the assessor were to check in the late A sets, he or she would come very close to covering his or her yearly salary in just the months we assessed.

We also noticed a bottleneck in the labs. The lab turnaround time was the main reason that it took A sets 12 business days to be refit. After using the data to establish interarrival times and running it through the input analyzer to determine the distributions, we used queuing theory to determine what adding an additional employee to the calibration shop would do to the process.

The third solution we evaluated was to set up a staging area and have the returning sets broken down and the items needing calibration and certification taken to their respective labs. After this was done, the remainder of the kit would be verified, closed, and returned to inventory. When it was time for the kit to be shipped to a customer, the calibrated items would be pulled from inventory. This differs from the current process because the current process requires the same calibrated items to always be in a specific kit.

After using a weighted matrix, the group was able to determine that the best option would be to hire a kit assessor with a primary job of assessing the majors and secondly, any other kits on the 90-day list. This person could also be cross trained to help in other departments in any spare time he or she had.

CHAPTER EIGHT – REFERENCES

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APPENDIX A: ACKNOWLEDGEMENTS

The project team would like to express our deepest appreciation to the Siemens' Team who provided insight and expertise that greatly assisted the successful completion of this project. We want to express our gratitude for your tremendous encouragement, guidance, and help. This project could not have been completed without your support. The success of this project depends largely on the Siemens' Staff who assisted directly or indirectly our team.

- Dog Hoffman, Director of Field Service Products
- Shannon Ziskovsky, Assets manager
- Blanche Singleton, Plant Manager, Field Service Products Atlanta
- Darin Bland, Operations Manager, Field Service Products Atlanta
- Ricardo Moraes, Field Engineering Manager
- Kevin Kelsey, General Manager
- Ernie Ayala, Project Manager
- All Siemens Employees at the Field Service Products Atlanta facility

A special message Aaron Danneman:
Aaron, our thoughts and prayers are with you and your family. It was a joy to work in your presence. We will never forget the warmth your smile brought to the office each and every day.

We would also like to acknowledge Michael Healy owner of Chickentown Software, for his patience and guidance with data manipulation assistance.

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APPENDIX C: REFLECTIONS

Sarah Abdullah: Throughout the project, The KSU faculty provided us with their invaluable guidance, comments, and suggestions. Working with Siemens provided the team with the ability to learn and adapt quickly to the work environment.
One of the challenges that we faced was related to the data collection. Siemens' employees do not follow the process of "initial inspection" for the A Sets and B Sets. They mainly perform a full-inventory turnover which includes the inspection process. This made it difficult for the team to determine the exact time to assess both sets. Our response to this challenge was to collect from experienced employees an average estimate time focusing only on the initial assessment part.
The capstone project helped me to capture new knowledge and expertise that allowed me to continuously learn and improve.

Karim Daoudi: Working with Siemens allowed me to enhance my knowledge and skills in solving problems, optimizing processes, and ensuring high quality while meeting cost and output goals. Applying Queuing Theory, as an Operation Research Model to Siemens' project helped the team to integrate Industrial Engineering skill sets learned at KSU to a real work environment. I am thankful for this opportunity that helped me gather the expertise I need to advance in my professional career.

Jennifer Rutledge: The biggest obstacle I faced was how to get the data needed to measure for our baseline. We had the 90-day lists but needed to figure out the costs associated with items that had fallen outside of the 90-day window. There was no direct way to track this because inventory is not adjusted out of the system using codes with serial numbers relating adjustments directly to specific kits. After some panic and wondering how we could continue work on the project, we were provided a solution using refurbishment orders from Turner Supply. This data singlehandedly got us back on track.

To make this project better, I would have loved to have complete access to the inventory module in TCTP. That way, we could have tracked each serial number from all A Sets and B Sets individually and come up with exact movements of all the kits. This would have made the values for queuing theory more accurate. The way we did it used inventory turns and while that works, looking at each serial number individually would have been better. A project is only as good as its data.

Data manipulation was the skill set that I personally utilized most, along with calculating how often A Sets arrived and departed FSPA. I had to use excel skills forgotten over the past four years, so I got some help from a friend and looked up some functions online. I also learned that every organization must solve the age-old problem of labor, how to find the right amount to get the job done but not have anything extra. Had we had some more time, I would have loved to develop an OR problem to help figure this out and add another level of analysis to our first solution.

All in all, it felt great to go back into a professional environment and walk around a warehouse again. Siemens seems like an incredible place to work; everyone always has a smile on their face. I also liked being able to utilize TCTP and use a different ERP from which I was used to using. I want to thank everyone at Siemens for always making us feel welcome and valued; not like college kids, but like equal and respected members of their team.

APPENDIX D: SUPPORTING DETAILS AND DOCUMENTATION

D.1 LATE VERIFIED JUNE

Line Item	Serial	Verified in June	Due Date	LATE	Cost
4	XXXXXXX	Verified In June	2/1/2018	LATE	
5	XXXXXXX	Verified In June	4/3/2018	LATE	
186	XXXXXXX	Verified In June	7/31/2016	LATE	
187	XXXXXXX	Verified In June	3/19/2017	LATE	
188	XXXXXXX	Verified In June	2/25/2018	LATE	
262	XXXXXXX	Verified In June	2/5/2018	LATE	
271	XXXXXXX	Verified In June	2/2/2015	LATE	
272	XXXXXXX	Verified In June	2/4/2016	LATE	
273	XXXXXXX	Verified In June	2/4/2016	LATE	
274	XXXXXXX	Verified In June	2/21/2016	LATE	
278	XXXXXXX	Verified In June	4/7/2015	LATE	
279	XXXXXXX	Verified In June	4/7/2015	LATE	
280	XXXXXXX	Verified In June	5/25/2015	LATE	
281	XXXXXXX	Verified In June	2/1/2016	LATE	
282	XXXXXXX	Verified In June	2/10/2016	LATE	
283	XXXXXXX	Verified In June	5/3/2018	LATE	XXXXX
284	XXXXXXX	Verified In June	3/21/2018	LATE	
327	XXXXXXX	Verified In June	12/8/2014	LATE	
331	XXXXXXX	Verified In June	10/23/2017	LATE	
403	XXXXXXX	Verified In June	4/11/2018	LATE	
419	XXXXXXX	Verified In June	6/27/2017	LATE	
420	XXXXXXX	Verified In June	11/12/2017	LATE	
430	XXXXXXX	Verified In June	11/30/2015	LATE	
443	XXXXXXX	Verified In June	7/9/2015	LATE	
444	XXXXXXX	Verified In June	7/9/2015	LATE	
445	XXXXXXX	Verified In June	9/3/2012	LATE	
446	XXXXXXX	Verified In June	9/3/2012	LATE	
454	XXXXXXX	Verified In June	3/3/2016	LATE	
470	XXXXXXX	Verified In June	7/13/2015	LATE	
479	XXXXXXX	Verified In June	7/12/2017	LATE	
487	XXXXXXX	Verified In June	7/23/2013	LATE	
489	XXXXXXX	Verified In June	9/20/2017	LATE	
490	XXXXXXX	Verified In June	3/21/2018	LATE	
501	XXXXXXX	Verified In June	8/11/2011	LATE	
502	XXXXXXX	Verified In June	9/4/2017	LATE	
508	XXXXXXX	Verified In June	8/6/2017	LATE	

Line Item	Serial	Verified in June	Due Date	LATE	Cost
509	XXXXXXX	Verified In June	8/14/2017	LATE	
510	XXXXXXX	Verified In June	8/21/2017	LATE	
511	XXXXXXX	Verified In June	9/6/2017	LATE	
537	XXXXXXX	Verified In June	3/26/2018	LATE	
538	XXXXXXX	Verified In June	5/20/2018	LATE	
547	XXXXXXX	Verified In June	9/2/2014	LATE	
554	XXXXXXX	Verified In June	1/20/2015	LATE	
555	XXXXXXX	Verified In June	9/4/2016	LATE	
556	XXXXXXX	Verified In June	2/20/2018	LATE	
558	XXXXXXX	Verified In June	7/4/2017	LATE	
569	XXXXXXX	Verified In June	1/12/2017	LATE	
570	XXXXXXX	Verified In June	5/29/2018	LATE	
573	XXXXXXX	Verified In June	2/17/2016	LATE	
607	XXXXXXX	Verified In June	5/21/2017	LATE	XXXXX
634	XXXXXXX	Verified In June	8/2/2017	LATE	
635	XXXXXXX	Verified In June	2/18/2018	LATE	
640	XXXXXXX	Verified In June	8/2/2016	LATE	XXXXX
644	XXXXXXX	Verified In June	12/17/2017	LATE	
651	XXXXXXX	Verified In June	5/23/2017	LATE	
652	XXXXXXX	Verified In June	3/4/2018	LATE	
706	XXXXXXX	Verified In June	7/1/2015	LATE	
707	XXXXXXX	Verified In June	7/6/2015	LATE	
708	XXXXXXX	Verified In June	10/20/2015	LATE	
709	XXXXXXX	Verified In June	11/2/2015	LATE	
710	XXXXXXX	Verified In June	11/1/2017	LATE	
711	XXXXXXX	Verified In June	2/1/2018	LATE	
716	XXXXXXX	Verified In June	12/28/2017	LATE	
769	XXXXXXX	Verified In June	3/21/2018	LATE	
779	XXXXXXX	Verified In June	10/3/2017	LATE	
836	XXXXXXX	Verified In June	3/6/2018	LATE	
844	XXXXXXX	Verified In June	8/29/2017	LATE	
846	XXXXXXX	Verified In June	11/28/2016	LATE	XXXXX
848	XXXXXXX	Verified In June	5/11/2017	LATE	XXXXX
849	XXXXXXX	Verified In June	5/11/2017	LATE	XXXXX
895	XXXXXXX	Verified In June	7/17/2017	LATE	
896	XXXXXXX	Verified In June	1/31/2018	LATE	
900	XXXXXXX	Verified In June	9/17/2017	LATE	
905	XXXXXXX	Verified In June	2/1/2018	LATE	
906	XXXXXXX	Verified In June	2/1/2018	LATE	
916	XXXXXXX	Verified In June	8/24/2017	LATE	
917	XXXXXXX	Verified In June	3/6/2018	LATE	

Line Item	Serial	Verified in June	Due Date	LATE	Cost
920	XXXXXXX	Verified In June	4/7/2014	LATE	
921	XXXXXXX	Verified In June	4/7/2014	LATE	
925	XXXXXXX	Verified In June	2/1/2018	LATE	
926	XXXXXXX	Verified In June	3/7/2018	LATE	
927	XXXXXXX	Verified In June	4/15/2018	LATE	
960	XXXXXXX	Verified In June	8/14/2017	LATE	
961	XXXXXXX	Verified In June	8/14/2017	LATE	
962	XXXXXXX	Verified In June	10/1/2017	LATE	
973	XXXXXXX	Verified In June	3/11/2018	LATE	
992	XXXXXXX	Verified In June	7/14/2017	LATE	
994	XXXXXXX	Verified In June	5/4/2018	LATE	
1017	XXXXXXX	Verified In June	9/25/2017	LATE	
1163	XXXXXXX	Verified In June	9/25/2017	LATE	
1164	XXXXXXX	Verified In June	9/25/2017	LATE	
1165	XXXXXXX	Verified In June	1/18/2018	LATE	
1168	XXXXXXX	Verified In June	1/15/2015	LATE	
1169	XXXXXXX	Verified In June	3/4/2015	LATE	
1170	XXXXXXX	Verified In June	7/22/2015	LATE	
1171	XXXXXXX	Verified In June	8/6/2017	LATE	
1172	XXXXXXX	Verified In June	9/11/2017	LATE	
1173	XXXXXXX	Verified In June	10/1/2017	LATE	
1174	XXXXXXX	Verified In June	3/16/2018	LATE	
1190	XXXXXXX	Verified In June	9/17/2017	LATE	XXXXX
1201	XXXXXXX	Verified In June	7/11/2017	LATE	
1202	XXXXXXX	Verified In June	7/25/2017	LATE	
1266	XXXXXXX	Verified In June	5/15/2014	LATE	
1281	XXXXXXX	Verified In June	1/26/2017	LATE	
1285	XXXXXXX	Verified In June	4/24/2018	LATE	
1287	XXXXXXX	Verified In June	7/25/2017	LATE	
1288	XXXXXXX	Verified In June	5/22/2018	LATE	
1338	XXXXXXX	Verified In June	2/4/2016	LATE	
1339	XXXXXXX	Verified In June	8/4/2016	LATE	
1340	XXXXXXX	Verified In June	4/3/2018	LATE	
1356	XXXXXXX	Verified In June	9/14/2010	LATE	
1363	XXXXXXX	Verified In June	8/22/2017	LATE	
1364	XXXXXXX	Verified In June	8/29/2017	LATE	
1365	XXXXXXX	Verified In June	8/30/2017	LATE	
1366	XXXXXXX	Verified In June	11/1/2017	LATE	
1367	XXXXXXX	Verified In June	11/12/2017	LATE	
1368	XXXXXXX	Verified In June	2/6/2018	LATE	
1369	XXXXXXX	Verified In June	3/22/2018	LATE	

Line Item	Serial	Verified in June	Due Date	LATE	Cost
1370	XXXXXXX	Verified In June	4/11/2018	LATE	
1398	XXXXXXX	Verified In June	8/14/2017	LATE	
1399	XXXXXXX	Verified In June	8/31/2017	LATE	
1400	XXXXXXX	Verified In June	8/31/2017	LATE	
1401	XXXXXXX	Verified In June	10/29/2017	LATE	
1402	XXXXXXX	Verified In June	3/6/2018	LATE	
1403	XXXXXXX	Verified In June	3/6/2018	LATE	
1404	XXXXXXX	Verified In June	5/20/2018	LATE	
1492	XXXXXXX	Verified In June	8/21/2017	LATE	
1549	XXXXXXX	Verified In June	4/11/2018	LATE	
1563	XXXXXXX	Verified In June	6/11/2014	LATE	
1572	XXXXXXX	Verified In June	1/22/2015	LATE	
1573	XXXXXXX	Verified In June	1/22/2015	LATE	
1577	XXXXXXX	Verified In June	7/8/2017	LATE	
1578	XXXXXXX	Verified In June	7/10/2017	LATE	
1579	XXXXXXX	Verified In June	12/6/2017	LATE	
1580	XXXXXXX	Verified In June	2/19/2018	LATE	
1581	XXXXXXX	Verified In June	2/19/2018	LATE	
1625	XXXXXXX	Verified In June	2/19/2018	LATE	
1706	XXXXXXX	Verified In June	7/25/2017	LATE	
1748	XXXXXXX	Verified In June	11/25/2013	LATE	
1799	XXXXXXX	Verified In June	7/18/2017	LATE	
1800	XXXXXXX	Verified In June	2/18/2018	LATE	
1818	XXXXXXX	Verified In June	8/1/2016	LATE	
1819	XXXXXXX	Verified In June	9/5/2016	LATE	
1820	XXXXXXX	Verified In June	2/5/2017	LATE	
1821	XXXXXXX	Verified In June	9/5/2017	LATE	
1822	XXXXXXX	Verified In June	10/4/2017	LATE	
1823	XXXXXXX	Verified In June	2/2/2018	LATE	
1941	XXXXXXX	Verified In June	2/18/2018	LATE	
1979	XXXXXXX	Verified In June	2/15/2015	LATE	
1980	XXXXXXX	Verified In June	10/6/2015	LATE	
1996	XXXXXXX	Verified In June	1/27/2014	LATE	
1997	XXXXXXX	Verified In June	6/22/2014	LATE	
1998	XXXXXXX	Verified In June	8/12/2015	LATE	
1999	XXXXXXX	Verified In June	9/13/2017	LATE	
2000	XXXXXXX	Verified In June	11/28/2017	LATE	
2057	XXXXXXX	Verified In June	8/1/2017	LATE	
2083	XXXXXXX	Verified In June	9/4/2017	LATE	
2084	XXXXXXX	Verified In June	10/1/2017	LATE	
2085	XXXXXXX	Verified In June	1/18/2018	LATE	
2086	XXXXXXX	Verified In June	1/18/2018	LATE	

Line Item	Serial	Verified in June	Due Date	LATE	Cost
2087	XXXXXXX	Verified In June	2/28/2018	LATE	
2095	XXXXXXX	Verified In June	3/16/2018	LATE	
2097	XXXXXXX	Verified In June	4/3/2018	LATE	
2101	XXXXXXX	Verified In June	1/4/2015	LATE	

D.2 LATE VERIFIED JULY

Line Item	Serial	Verified in July	Due Date	LATE	Cost
257	XXXXXXXX	Verified In July	6/10/2013	LATE	
258	XXXXXXXX	Verified In July	3/21/2018	LATE	
345	XXXXXXXX	Verified In July	11/15/2017	LATE	
346	XXXXXXXX	Verified In July	3/19/2017	LATE	
347	XXXXXXXX	Verified In July	5/1/2016	LATE	
348	XXXXXXXX	Verified In July	4/4/2018	LATE	
382	XXXXXXXX	Verified In July	10/4/2017	LATE	
384	XXXXXXXX	Verified In July	3/15/2018	LATE	
395	XXXXXXXX	Verified In July	8/13/2017	LATE	
396	XXXXXXXX	Verified In July	2/19/2018	LATE	
397	XXXXXXXX	Verified In July	8/3/2017	LATE	
398	XXXXXXXX	Verified In July	6/17/2018	LATE	
399	XXXXXXXX	Verified In July	6/17/2018	LATE	
400	XXXXXXXX	Verified In July	6/25/2018	LATE	
422	XXXXXXXX	Verified In July	6/14/2017	LATE	
428	XXXXXXXX	Verified In July	8/30/2017	LATE	
434	XXXXXXXX	Verified In July	6/17/2018	LATE	
475	XXXXXXXX	Verified In July	6/10/2018	LATE	
533	XXXXXXXX	Verified In July	7/7/2015	LATE	
545	XXXXXXXX	Verified In July	7/19/2017	LATE	
547	XXXXXXXX	Verified In July	11/12/2017	LATE	
573	XXXXXXXX	Verified In July	9/22/2014	LATE	
587	XXXXXXXX	Verified In July	4/22/2018	LATE	
594	XXXXXXXX	Verified In July	8/18/2016	LATE	
595	XXXXXXXX	Verified In July	7/23/2017	LATE	
613	XXXXXXXX	Verified In July	6/18/2018	LATE	XXXX
627	XXXXXXXX	Verified In July	2/2/2016	LATE	
681	XXXXXXXX	Verified In July	9/5/2017	LATE	
720	XXXXXXXX	Verified In July	8/30/2016	LATE	
803	XXXXXXXX	Verified In July	6/12/2017	LATE	
878	XXXXXXXX	Verified In July	3/6/2018	LATE	
879	XXXXXXXX	Verified In July	3/6/2018	LATE	
880	XXXXXXXX	Verified In July	4/9/2018	LATE	
881	XXXXXXXX	Verified In July	5/24/2018	LATE	
882	XXXXXXXX	Verified In July	6/18/2018	LATE	
883	XXXXXXXX	Verified In July	6/18/2018	LATE	
884	XXXXXXXX	Verified In July	6/25/2018	LATE	
901	XXXXXXXX	Verified In July	4/16/2014	LATE	
902	XXXXXXXX	Verified In July	6/15/2014	LATE	

Line Item	Serial	Verified in July	Due Date	LATE	Cost
903	XXXXXXXX	Verified In July	6/15/2014	LATE	
904	XXXXXXXX	Verified In July	6/30/2014	LATE	
905	XXXXXXXX	Verified In July	7/19/2015	LATE	
920	XXXXXXXX	Verified In July	5/22/2018	LATE	
921	XXXXXXXX	Verified In July	6/17/2018	LATE	XXXX
931	XXXXXXXX	Verified In July	10/22/2012	LATE	
932	XXXXXXXX	Verified In July	6/25/2017	LATE	
938	XXXXXXXX	Verified In July	6/18/2018	LATE	
939	XXXXXXXX	Verified In July	6/18/2018	LATE	
944	XXXXXXXX	Verified In July	10/22/2012	LATE	
945	XXXXXXXX	Verified In July	5/8/2016	LATE	
946	XXXXXXXX	Verified In July	7/26/2017	LATE	
947	XXXXXXXX	Verified In July	8/6/2017	LATE	
948	XXXXXXXX	Verified In July	8/6/2017	LATE	
949	XXXXXXXX	Verified In July	8/16/2017	LATE	
950	XXXXXXXX	Verified In July	8/22/2017	LATE	
951	XXXXXXXX	Verified In July	8/22/2017	LATE	
955	XXXXXXXX	Verified In July	2/19/2018	LATE	
986	XXXXXXXX	Verified In July	9/5/2016	LATE	
987	XXXXXXXX	Verified In July	1/25/2016	LATE	XXXX
1012	XXXXXXXX	Verified In July	7/16/2015	LATE	
1013	XXXXXXXX	Verified In July	12/18/2016	LATE	
1031	XXXXXXXX	Verified In July	7/14/2017	LATE	
1053	XXXXXXXX	Verified In July	4/3/2018	LATE	
1054	XXXXXXXX	Verified In July	4/3/2018	LATE	
1071	XXXXXXXX	Verified In July	7/1/2014	LATE	
1107	XXXXXXXX	Verified In July	7/19/2015	LATE	
1108	XXXXXXXX	Verified In July	7/12/2017	LATE	
1109	XXXXXXXX	Verified In July	7/27/2017	LATE	
1110	XXXXXXXX	Verified In July	8/17/2017	LATE	
1185	XXXXXXXX	Verified In July	7/27/2017	LATE	
1187	XXXXXXXX	Verified In July	6/21/2018	LATE	
1246	XXXXXXXX	Verified In July	3/6/2018	LATE	
1247	XXXXXXXX	Verified In July	6/18/2018	LATE	
1248	XXXXXXXX	Verified In July	6/27/2018	LATE	
1267	XXXXXXXX	Verified In July	8/13/2015	LATE	
1268	XXXXXXXX	Verified In July	2/28/2016	LATE	
1272	XXXXXXXX	Verified In July	2/2/2018	LATE	
1273	XXXXXXXX	Verified In July	2/20/2018	LATE	
1274	XXXXXXXX	Verified In July	3/11/2018	LATE	
1275	XXXXXXXX	Verified In July	3/16/2018	LATE	

Line Item	Serial	Verified in July	Due Date	LATE	Cost
1277	XXXXXXXX	Verified In July	3/28/2018	LATE	
1278	XXXXXXXX	Verified In July	4/11/2018	LATE	
1279	XXXXXXXX	Verified In July	5/20/2018	LATE	
1280	XXXXXXXX	Verified In July	6/25/2018	LATE	
1318	XXXXXXXX	Verified In July	2/19/2015	LATE	
1319	XXXXXXXX	Verified In July	6/22/2015	LATE	
1343	XXXXXXXX	Verified In July	2/18/2018	LATE	
1344	XXXXXXXX	Verified In July	6/10/2018	LATE	
1345	XXXXXXXX	Verified In July	6/11/2018	LATE	
1346	XXXXXXXX	Verified In July	6/17/2018	LATE	
1347	XXXXXXXX	Verified In July	6/25/2018	LATE	
1381	XXXXXXXX	Verified In July	9/27/2017	LATE	
1418	XXXXXXXX	Verified In July	1/9/2013	LATE	
1420	XXXXXXXX	Verified In July	3/8/2015	LATE	
1465	XXXXXXXX	Verified In July	2/18/2018	LATE	
1535	XXXXXXXX	Verified In July	3/2/2014	LATE	
1536	XXXXXXXX	Verified In July	5/31/2015	LATE	
1537	XXXXXXXX	Verified In July	3/6/2016	LATE	
1538	XXXXXXXX	Verified In July	7/12/2017	LATE	
1539	XXXXXXXX	Verified In July	8/3/2017	LATE	
1541	XXXXXXXX	Verified In July	3/6/2018	LATE	
1545	XXXXXXXX	Verified In July	2/2/2014	LATE	
1546	XXXXXXXX	Verified In July	2/16/2015	LATE	
1547	XXXXXXXX	Verified In July	3/11/2015	LATE	
1548	XXXXXXXX	Verified In July	7/2/2015	LATE	
1549	XXXXXXXX	Verified In July	9/5/2016	LATE	
1550	XXXXXXXX	Verified In July	6/6/2017	LATE	
1551	XXXXXXXX	Verified In July	6/25/2017	LATE	
1552	XXXXXXXX	Verified In July	7/3/2017	LATE	
1553	XXXXXXXX	Verified In July	7/4/2017	LATE	
1554	XXXXXXXX	Verified In July	7/16/2017	LATE	
1555	XXXXXXXX	Verified In July	7/17/2017	LATE	
1556	XXXXXXXX	Verified In July	7/23/2017	LATE	
1557	XXXXXXXX	Verified In July	7/23/2017	LATE	
1558	XXXXXXXX	Verified In July	8/6/2017	LATE	
1559	XXXXXXXX	Verified In July	8/16/2017	LATE	
1568	XXXXXXXX	Verified In July	2/5/2018	LATE	
1569	XXXXXXXX	Verified In July	2/12/2018	LATE	
1570	XXXXXXXX	Verified In July	3/13/2018	LATE	
1571	XXXXXXXX	Verified In July	4/25/2018	LATE	

Line Item	Serial	Verified in July	Due Date	LATE	Cost
1572	XXXXXXXX	Verified In July	6/25/2018	LATE	
1573	XXXXXXXX	Verified In July	6/25/2018	LATE	
1596	XXXXXXXX	Verified In July	8/6/2017	LATE	
1597	XXXXXXXX	Verified In July	10/11/2012	LATE	
1598	XXXXXXXX	Verified In July	9/22/2014	LATE	
1599	XXXXXXXX	Verified In July	2/15/2015	LATE	
1600	XXXXXXXX	Verified In July	8/31/2015	LATE	
1601	XXXXXXXX	Verified In July	3/9/2016	LATE	
1602	XXXXXXXX	Verified In July	7/17/2017	LATE	
1603	XXXXXXXX	Verified In July	7/23/2017	LATE	
1604	XXXXXXXX	Verified In July	7/25/2017	LATE	
1605	XXXXXXXX	Verified In July	8/6/2017	LATE	
1608	XXXXXXXX	Verified In July	2/3/2018	LATE	
1609	XXXXXXXX	Verified In July	6/25/2018	LATE	
1631	XXXXXXXX	Verified In July	11/23/2015	LATE	
1632	XXXXXXXX	Verified In July	2/1/2016	LATE	
1633	XXXXXXXX	Verified In July	6/6/2018	LATE	
1646	XXXXXXXX	Verified In July	2/17/2016	LATE	
1647	XXXXXXXX	Verified In July	5/3/2016	LATE	
1648	XXXXXXXX	Verified In July	1/15/2017	LATE	
1649	XXXXXXXX	Verified In July	8/13/2017	LATE	
1650	XXXXXXXX	Verified In July	8/13/2017	LATE	
1651	XXXXXXXX	Verified In July	3/4/2018	LATE	
1652	XXXXXXXX	Verified In July	3/26/2018	LATE	
1653	XXXXXXXX	Verified In July	4/11/2018	LATE	
1654	XXXXXXXX	Verified In July	4/15/2018	LATE	
1655	XXXXXXXX	Verified In July	6/11/2018	LATE	
1656	XXXXXXXX	Verified In July	6/17/2018	LATE	
1675	XXXXXXXX	Verified In July	8/5/2014	LATE	
1772	XXXXXXXX	Verified In July	2/13/2012	LATE	

D.3 LATE VERIFIED AUGUST

Line Item	Serial	Verified in August	Due Date	LATE	Cost
39	10001179	Verified In Aug.	7/30/2018	LATE	
64	13501160	Verified In Aug.	7/18/2018	LATE	
65	13541396	Verified In Aug.	7/18/2018	LATE	
134	10000909	Verified In Aug.	7/29/2018	LATE	
135	10011844	Verified In Aug.	7/29/2018	LATE	
165	10001351	Verified In Aug.	7/23/2018	LATE	
170	10001360	Verified In Aug.	7/29/2018	LATE	
171	12407467	Verified In Aug.	7/29/2018	LATE	
194	13499955	Verified In Aug.	7/22/2018	LATE	
196	13525442	Verified In Aug.	7/29/2018	LATE	
210	10000988	Verified In Aug.	7/18/2018	LATE	
211	10011813	Verified In Aug.	7/19/2018	LATE	
254	13575047	Verified In Aug.	7/23/2018	LATE	
255	13527301	Verified In Aug.	7/29/2018	LATE	
283	13536362	Verified In Aug.	7/30/2018	LATE	XXXXX
284	13527655	Verified In Aug.	7/30/2018	LATE	
285	13536364	Verified In Aug.	7/30/2018	LATE	
286	13527656	Verified In Aug.	7/30/2018	LATE	XXXXX
300	10004144	Verified In Aug.	7/10/2018	LATE	
302	13594838	Verified In Aug.	7/29/2018	LATE	
309	10002876	Verified In Aug.	7/8/2018	LATE	
310	10002877	Verified In Aug.	7/8/2018	LATE	
313	13552721	Verified In Aug.	7/18/2018	LATE	
341	13613004	Verified In Aug.	7/25/2018	LATE	
343	13575848	Verified In Aug.	7/29/2018	LATE	
364	10000395	Verified In Aug.	3/20/2016	LATE	
374	10000058	Verified In Aug.	7/22/2018	LATE	
450	10011931	Verified In Aug.	3/19/2017	LATE	
451	10011950	Verified In Aug.	3/19/2017	LATE	
452	10011950	Verified In Aug.	8/1/2017	LATE	
453	10003853	Verified In Aug.	4/3/2018	LATE	
454	10003854	Verified In Aug.	5/17/2018	LATE	
461	10000517	Verified In Aug.	7/15/2018	LATE	XXXXX
466	13493660	Verified In Aug.	7/29/2018	LATE	
468	13599358	Verified In Aug.	7/24/2018	LATE	XXXXX
479	13572516	Verified In Aug.	7/25/2018	LATE	XXXXX
481	13567501	Verified In Aug.	1/8/2018	LATE	
482	13579238	Verified In Aug.	7/25/2018	LATE	
488	12405937	Verified In Aug.	6/18/2018	LATE	

Line Item	Serial	Verified in August	Due Date	LATE	Cost
489	12405935	Verified In Aug.	7/1/2018	LATE	
496	13496827	Verified In Aug.	7/26/2017	LATE	
497	13496826	Verified In Aug.	8/21/2017	LATE	
498	10003991	Verified In Aug.	11/12/2017	LATE	
499	12406329	Verified In Aug.	3/21/2018	LATE	
501	10011951	Verified In Aug.	10/18/2017	LATE	
502	10012240	Verified In Aug.	5/3/2018	LATE	
504	10003994	Verified In Aug.	3/6/2017	LATE	
545	13557265	Verified In Aug.	6/15/2017	LATE	
618	13594855	Verified In Aug.	7/9/2018	LATE	XXXXX
644	13539211	Verified In Aug.	5/11/2018	LATE	
645	13540159	Verified In Aug.	7/29/2018	LATE	
658	10003119	Verified In Aug.	7/16/2018	LATE	
659	13526752	Verified In Aug.	7/18/2018	LATE	XXXXX
661	13496778	Verified In Aug.	7/24/2018	LATE	
747	10004040	Verified In Aug.	7/12/2018	LATE	XXXXX
755	10004061	Verified In Aug.	7/22/2018	LATE	XXXXX
795	13506931	Verified In Aug.	6/15/2017	LATE	
796	13506930	Verified In Aug.	7/27/2017	LATE	
813	13570048	Verified In Aug.	7/12/2018	LATE	
828	13509055	Verified In Aug.	5/31/2018	LATE	
829	13522909	Verified In Aug.	6/6/2018	LATE	
830	13508870	Verified In Aug.	7/9/2018	LATE	
831	13506577	Verified In Aug.	7/12/2018	LATE	
832	13509054	Verified In Aug.	7/12/2018	LATE	
834	13522912	Verified In Aug.	7/18/2018	LATE	
860	13572221	Verified In Aug.	7/19/2018	LATE	
863	12875326	Verified In Aug.	7/25/2018	LATE	
894	13568119	Verified In Aug.	7/29/2018	LATE	
930	13579404	Verified In Aug.	7/29/2018	LATE	
931	13584290	Verified In Aug.	7/29/2018	LATE	
932	13585254	Verified In Aug.	7/29/2018	LATE	
933	10000645	Verified In Aug.	7/8/2018	LATE	
934	10000666	Verified In Aug.	7/8/2018	LATE	
935	10000660	Verified In Aug.	7/9/2018	LATE	
937	13567129	Verified In Aug.	7/16/2018	LATE	
938	10000661	Verified In Aug.	7/16/2018	LATE	
939	13585260	Verified In Aug.	7/22/2018	LATE	
940	10000621	Verified In Aug.	7/23/2018	LATE	
941	10011170	Verified In Aug.	7/23/2018	LATE	
964	13590034	Verified In Aug.	9/11/2017	LATE	

Line Item	August	Verified In August	Due Date	LATE	Cost
965	13564791	Verified In Aug.	7/8/2018	LATE	
966	13590033	Verified In Aug.	7/12/2018	LATE	
967	10003385	Verified In Aug.	7/22/2018	LATE	
970	13518194	Verified In Aug.	7/26/2018	LATE	
1013	10003383	Verified In Aug.	7/30/2018	LATE	
1020	10002935	Verified In Aug.	7/22/2018	LATE	
1090	13566225	Verified In Aug.	2/10/2015	LATE	
1133	13585493	Verified In Aug.	7/29/2018	LATE	
1143	13525654	Verified In Aug.	7/19/2018	LATE	
1144	12406809	Verified In Aug.	7/23/2018	LATE	XXXXX
1151	10003921	Verified In Aug.	9/3/2017	LATE	
1152	10004000	Verified In Aug.	7/29/2018	LATE	
1166	10013797	Verified In Aug.	7/29/2018	LATE	
1168	10013003	Verified In Aug.	7/29/2018	LATE	
1184	10002686	Verified In Aug.	7/12/2018	LATE	
1186	10002674	Verified In Aug.	7/16/2018	LATE	
1187	10002644	Verified In Aug.	7/23/2018	LATE	
1188	10002638	Verified In Aug.	7/24/2018	LATE	
1189	10002682	Verified In Aug.	7/25/2018	LATE	
1190	10012277	Verified In Aug.	7/29/2018	LATE	
1217	10002902	Verified In Aug.	7/29/2018	LATE	
1218	10013424	Verified In Aug.	7/29/2018	LATE	

D.4 VERIFIED IN SEPTEMBER

Line	Serial	Verified In September	Due Date	LATE	Cost
277	XXXXXXXX	Verified in Sept.	4/9/2018	LATE	XXXX
288	XXXXXXXX	Verified in Sept.	8/1/2018	LATE	XXXX
966	XXXXXXXX	Verified in Sept.	8/23/2018	LATE	XXXX
211	XXXXXXXX	Verified in Sept.	8/22/2018	LATE	XXXX
289	XXXXXXXX	Verified in Sept.	8/2/2018	LATE	XXXX
965	XXXXXXXX	Verified in Sept.	8/16/2018	LATE	XXXX
213	XXXXXXXX	Verified in Sept.	8/8/2018	LATE	XXXX
477	XXXXXXXX	Verified in Sept.	8/27/2018	LATE	XXXX
862	XXXXXXXX	Verified in Sept.	8/21/2018	LATE	XXXX
476	XXXXXXXX	Verified in Sept.	8/23/2018	LATE	XXXX
637	XXXXXXXX	Verified in Sept.	4/9/2018	LATE	XXXX
676	XXXXXXXX	Verified in Sept.	8/5/2018	LATE	XXXX
212	XXXXXXXX	Verified in Sept.	8/6/2018	LATE	XXXX
372	XXXXXXXX	Verified in Sept.	7/2/2018	LATE	XXXX
226	XXXXXXXX	Verified in Sept.	7/18/2018	LATE	XXXX
359	XXXXXXXX	Verified in Sept.	7/29/2018	LATE	XXXX
649	XXXXXXXX	Verified in Sept.	8/20/2018	LATE	XXXX
502	XXXXXXXX	Verified in Sept.	7/29/2018	LATE	XXXX
590	XXXXXXXX	Verified in Sept.	7/22/2018	LATE	XXXX
592	XXXXXXXX	Verified in Sept.	8/2/2018	LATE	XXXX
591	XXXXXXXX	Verified in Sept.	7/29/2018	LATE	XXXX
384	XXXXXXXX	Verified in Sept.	8/30/2018	LATE	XXXX
596	XXXXXXXX	Verified in Sept.	8/14/2018	LATE	XXXX
846	XXXXXXXX	Verified in Sept.	8/16/2018	LATE	XXXX
854	XXXXXXXX	Verified in Sept.	8/30/2018	LATE	XXXX
853	XXXXXXXX	Verified in Sept.	8/16/2018	LATE	XXXX
619	XXXXXXXX	Verified in Sept.	7/8/2018	LATE	XXXX
621	XXXXXXXX	Verified in Sept.	8/16/2018	LATE	XXXX
721	XXXXXXXX	Verified in Sept.	7/22/2018	LATE	XXXX
552	XXXXXXXX	Verified in Sept.	8/7/2018	LATE	XXXX
720	XXXXXXXX	Verified in Sept.	7/2/2018	LATE	XXXX
722	XXXXXXXX	Verified in Sept.	8/7/2018	LATE	XXXX
471	XXXXXXXX	Verified in Sept.	8/22/2018	LATE	XXXX
861	XXXXXXXX	Verified in Sept.	8/19/2018	LATE	XXXX
3	XXXXXXXX	Verified in Sept.	7/1/2018	LATE	
7	XXXXXXXX	Verified in Sept.	7/29/2018	LATE	
8	XXXXXXXX	Verified in Sept.	7/29/2018	LATE	
9	XXXXXXXX	Verified in Sept.	8/1/2018	LATE	
10	XXXXXXXX	Verified in Sept.	8/14/2018	LATE	

Line	Serial	Verified In September	Due Date	LATE	Cost
11	XXXXXXXX	Verified in Sept.	8/14/2018	LATE	
12	XXXXXXXX	Verified in Sept.	8/28/2018	LATE	
21	XXXXXXXX	Verified in Sept.	8/19/2018	LATE	
38	XXXXXXXX	Verified in Sept.	8/16/2018	LATE	
40	XXXXXXXX	Verified in Sept.	8/28/2018	LATE	
51	XXXXXXXX	Verified in Sept.	7/12/2018	LATE	
52	XXXXXXXX	Verified in Sept.	7/18/2018	LATE	
53	XXXXXXXX	Verified in Sept.	7/22/2018	LATE	
56	XXXXXXXX	Verified in Sept.	7/29/2018	LATE	
63	XXXXXXXX	Verified in Sept.	8/5/2018	LATE	
69	XXXXXXXX	Verified in Sept.	8/20/2018	LATE	
71	XXXXXXXX	Verified in Sept.	8/22/2018	LATE	
73	XXXXXXXX	Verified in Sept.	8/23/2018	LATE	
86	XXXXXXXX	Verified in Sept.	8/2/2018	LATE	
87	XXXXXXXX	Verified in Sept.	8/8/2018	LATE	
88	XXXXXXXX	Verified in Sept.	8/22/2018	LATE	
89	XXXXXXXX	Verified in Sept.	8/22/2018	LATE	
98	XXXXXXXX	Verified in Sept.	8/5/2018	LATE	
99	XXXXXXXX	Verified in Sept.	8/5/2018	LATE	
107	XXXXXXXX	Verified in Sept.	7/18/2018	LATE	
110	XXXXXXXX	Verified in Sept.	8/7/2018	LATE	
116	XXXXXXXX	Verified in Sept.	8/14/2018	LATE	
118	XXXXXXXX	Verified in Sept.	8/28/2018	LATE	
122	XXXXXXXX	Verified in Sept.	7/18/2018	LATE	
123	XXXXXXXX	Verified in Sept.	7/22/2018	LATE	
124	XXXXXXXX	Verified in Sept.	7/24/2018	LATE	
125	XXXXXXXX	Verified in Sept.	7/25/2018	LATE	
126	XXXXXXXX	Verified in Sept.	7/29/2018	LATE	
127	XXXXXXXX	Verified in Sept.	7/29/2018	LATE	
128	XXXXXXXX	Verified in Sept.	8/21/2018	LATE	
129	XXXXXXXX	Verified in Sept.	8/21/2018	LATE	
139	XXXXXXXX	Verified in Sept.	7/18/2018	LATE	
140	XXXXXXXX	Verified in Sept.	7/22/2018	LATE	
141	XXXXXXXX	Verified in Sept.	8/7/2018	LATE	
142	XXXXXXXX	Verified in Sept.	8/8/2018	LATE	
143	XXXXXXXX	Verified in Sept.	8/14/2018	LATE	
144	XXXXXXXX	Verified in Sept.	8/23/2018	LATE	
145	XXXXXXXX	Verified in Sept.	8/30/2018	LATE	
146	XXXXXXXX	Verified in Sept.	8/30/2018	LATE	
155	XXXXXXXX	Verified in Sept.	8/20/2018	LATE	
162	XXXXXXXX	Verified in Sept.	8/22/2018	LATE	

Line	Serial	Verified In September	Due Date	LATE	Cost
166	XXXXXXXX	Verified in Sept.	7/23/2018	LATE	
167	XXXXXXXX	Verified in Sept.	8/8/2018	LATE	
181	XXXXXXXX	Verified in Sept.	8/13/2018	LATE	
202	XXXXXXXX	Verified in Sept.	8/2/2018	LATE	
207	XXXXXXXX	Verified in Sept.	8/22/2018	LATE	
209	XXXXXXXX	Verified in Sept.	8/7/2018	LATE	
210	XXXXXXXX	Verified in Sept.	7/29/2018	LATE	
228	XXXXXXXX	Verified in Sept.	7/18/2018	LATE	
229	XXXXXXXX	Verified in Sept.	7/18/2018	LATE	
232	XXXXXXXX	Verified in Sept.	8/7/2018	LATE	
239	XXXXXXXX	Verified in Sept.	8/8/2018	LATE	
242	XXXXXXXX	Verified in Sept.	8/21/2018	LATE	
261	XXXXXXXX	Verified in Sept.	8/2/2018	LATE	
313	XXXXXXXX	Verified in Sept.	8/30/2018	LATE	
344	XXXXXXXX	Verified in Sept.	7/9/2018	LATE	
345	XXXXXXXX	Verified in Sept.	7/18/2018	LATE	
346	XXXXXXXX	Verified in Sept.	7/25/2018	LATE	
347	XXXXXXXX	Verified in Sept.	8/1/2018	LATE	
348	XXXXXXXX	Verified in Sept.	8/14/2018	LATE	
349	XXXXXXXX	Verified in Sept.	8/23/2018	LATE	
360	XXXXXXXX	Verified in Sept.	8/28/2018	LATE	
363	XXXXXXXX	Verified in Sept.	8/22/2018	LATE	
364	XXXXXXXX	Verified in Sept.	8/28/2018	LATE	
371	XXXXXXXX	Verified in Sept.	8/19/2018	LATE	
381	XXXXXXXX	Verified in Sept.	11/12/2017	LATE	
386	XXXXXXXX	Verified in Sept.	8/23/2018	LATE	
393	XXXXXXXX	Verified in Sept.	8/21/2018	LATE	
395	XXXXXXXX	Verified in Sept.	8/28/2018	LATE	
401	XXXXXXXX	Verified in Sept.	8/21/2018	LATE	
403	XXXXXXXX	Verified in Sept.	8/21/2018	LATE	
410	XXXXXXXX	Verified in Sept.	8/1/2018	LATE	
417	XXXXXXXX	Verified in Sept.	7/18/2018	LATE	
418	XXXXXXXX	Verified in Sept.	7/18/2018	LATE	
419	XXXXXXXX	Verified in Sept.	7/19/2018	LATE	
420	XXXXXXXX	Verified in Sept.	8/1/2018	LATE	
421	XXXXXXXX	Verified in Sept.	8/1/2018	LATE	
422	XXXXXXXX	Verified in Sept.	8/6/2018	LATE	
431	XXXXXXXX	Verified in Sept.	7/25/2018	LATE	
440	XXXXXXXX	Verified in Sept.	7/23/2018	LATE	
441	XXXXXXXX	Verified in Sept.	7/25/2018	LATE	
442	XXXXXXXX	Verified in Sept.	7/29/2018	LATE	

Line	Serial	Verified In September	Due Date	LATE	Cost
443	XXXXXXXX	Verified in Sept.	7/29/2018	LATE	
444	XXXXXXXX	Verified in Sept.	8/1/2018	LATE	
445	XXXXXXXX	Verified in Sept.	8/2/2018	LATE	
446	XXXXXXXX	Verified in Sept.	8/8/2018	LATE	
454	XXXXXXXX	Verified in Sept.	8/16/2018	LATE	
470	XXXXXXXX	Verified in Sept.	8/21/2018	LATE	
500	XXXXXXXX	Verified in Sept.	7/10/2018	LATE	
501	XXXXXXXX	Verified in Sept.	7/22/2018	LATE	
505	XXXXXXXX	Verified in Sept.	8/8/2018	LATE	
506	XXXXXXXX	Verified in Sept.	8/12/2018	LATE	
507	XXXXXXXX	Verified in Sept.	8/13/2018	LATE	
508	XXXXXXXX	Verified in Sept.	8/16/2018	LATE	
510	XXXXXXXX	Verified in Sept.	8/22/2018	LATE	
511	XXXXXXXX	Verified in Sept.	8/28/2018	LATE	
512	XXXXXXXX	Verified in Sept.	8/28/2018	LATE	
553	XXXXXXXX	Verified in Sept.	9/5/2017	LATE	
554	XXXXXXXX	Verified in Sept.	9/6/2017	LATE	
555	XXXXXXXX	Verified in Sept.	9/20/2017	LATE	
556	XXXXXXXX	Verified in Sept.	8/1/2018	LATE	
557	XXXXXXXX	Verified in Sept.	8/1/2018	LATE	
558	XXXXXXXX	Verified in Sept.	8/7/2018	LATE	
559	XXXXXXXX	Verified in Sept.	8/7/2018	LATE	
563	XXXXXXXX	Verified in Sept.	8/20/2018	LATE	
564	XXXXXXXX	Verified in Sept.	8/23/2018	LATE	
624	XXXXXXXX	Verified in Sept.	8/22/2018	LATE	
642	XXXXXXXX	Verified in Sept.	7/30/2018	LATE	
651	XXXXXXXX	Verified in Sept.	8/14/2018	LATE	
652	XXXXXXXX	Verified in Sept.	8/14/2018	LATE	
673	XXXXXXXX	Verified in Sept.	7/29/2018	LATE	
675	XXXXXXXX	Verified in Sept.	8/5/2018	LATE	
677	XXXXXXXX	Verified in Sept.	8/6/2018	LATE	
679	XXXXXXXX	Verified in Sept.	8/12/2018	LATE	
686	XXXXXXXX	Verified in Sept.	8/22/2018	LATE	
696	XXXXXXXX	Verified in Sept.	7/26/2018	LATE	
701	XXXXXXXX	Verified in Sept.	8/8/2018	LATE	
710	XXXXXXXX	Verified in Sept.	8/21/2018	LATE	
711	XXXXXXXX	Verified in Sept.	8/21/2018	LATE	
713	XXXXXXXX	Verified in Sept.	8/22/2018	LATE	
716	XXXXXXXX	Verified in Sept.	8/28/2018	LATE	
730	XXXXXXXX	Verified in Sept.	7/15/2018	LATE	
731	XXXXXXXX	Verified in Sept.	7/29/2018	LATE	

Line	Serial	Verified In September	Due Date	LATE	Cost
732	XXXXXXXX	Verified in Sept.	7/29/2018	LATE	
733	XXXXXXXX	Verified in Sept.	7/29/2018	LATE	
734	XXXXXXXX	Verified in Sept.	8/19/2018	LATE	
737	XXXXXXXX	Verified in Sept.	7/24/2018	LATE	
752	XXXXXXXX	Verified in Sept.	7/1/2018	LATE	
753	XXXXXXXX	Verified in Sept.	7/5/2018	LATE	
754	XXXXXXXX	Verified in Sept.	7/16/2018	LATE	
755	XXXXXXXX	Verified in Sept.	7/23/2018	LATE	
756	XXXXXXXX	Verified in Sept.	8/1/2018	LATE	
758	XXXXXXXX	Verified in Sept.	8/8/2018	LATE	
759	XXXXXXXX	Verified in Sept.	8/12/2018	LATE	
760	XXXXXXXX	Verified in Sept.	8/16/2018	LATE	
761	XXXXXXXX	Verified in Sept.	8/20/2018	LATE	
762	XXXXXXXX	Verified in Sept.	8/28/2018	LATE	
763	XXXXXXXX	Verified in Sept.	8/28/2018	LATE	
764	XXXXXXXX	Verified in Sept.	8/30/2018	LATE	
765	XXXXXXXX	Verified in Sept.	8/30/2018	LATE	
770	XXXXXXXX	Verified in Sept.	7/24/2018	LATE	
772	XXXXXXXX	Verified in Sept.	8/2/2018	LATE	
783	XXXXXXXX	Verified in Sept.	7/18/2018	LATE	
785	XXXXXXXX	Verified in Sept.	7/18/2018	LATE	
786	XXXXXXXX	Verified in Sept.	7/23/2018	LATE	
787	XXXXXXXX	Verified in Sept.	8/6/2018	LATE	
788	XXXXXXXX	Verified in Sept.	8/6/2018	LATE	
795	XXXXXXXX	Verified in Sept.	7/2/2018	LATE	
811	XXXXXXXX	Verified in Sept.	7/18/2018	LATE	
814	XXXXXXXX	Verified in Sept.	8/1/2018	LATE	
816	XXXXXXXX	Verified in Sept.	8/9/2018	LATE	
819	XXXXXXXX	Verified in Sept.	8/21/2018	LATE	
821	XXXXXXXX	Verified in Sept.	8/27/2018	LATE	
850	XXXXXXXX	Verified in Sept.	8/8/2018	LATE	
851	XXXXXXXX	Verified in Sept.	8/9/2018	LATE	
852	XXXXXXXX	Verified in Sept.	8/13/2018	LATE	
866	XXXXXXXX	Verified in Sept.	8/6/2017	LATE	
873	XXXXXXXX	Verified in Sept.	8/9/2018	LATE	
886	XXXXXXXX	Verified in Sept.	8/8/2018	LATE	
888	XXXXXXXX	Verified in Sept.	8/28/2018	LATE	
894	XXXXXXXX	Verified in Sept.	8/14/2018	LATE	
895	XXXXXXXX	Verified in Sept.	8/14/2018	LATE	
896	XXXXXXXX	Verified in Sept.	8/16/2018	LATE	
901	XXXXXXXX	Verified in Sept.	6/17/2018	LATE	

Line	Serial	Verified In September	Due Date	LATE	Cost
939	XXXXXXXX	Verified in Sept.	7/26/2018	LATE	
982	XXXXXXXX	Verified in Sept.	7/31/2018	LATE	
983	XXXXXXXX	Verified in Sept.	8/6/2018	LATE	
984	XXXXXXXX	Verified in Sept.	8/29/2018	LATE	

D.5 VERIFIED IN OCTOBER

Line Item	Serial	Verified In October	Due Date	LATE	Cost
10	XXXXXXX	Verified In Oct.	8/28/2018	LATE	
12	XXXXXXX	Verified In Oct.	7/29/2018	LATE	
13	XXXXXXX	Verified In Oct.	8/14/2018	LATE	
14	XXXXXXX	Verified In Oct.	8/22/2018	LATE	
15	XXXXXXX	Verified In Oct.	8/22/2018	LATE	
16	XXXXXXX	Verified In Oct.	8/23/2018	LATE	
17	XXXXXXX	Verified In Oct.	8/30/2018	LATE	
18	XXXXXXX	Verified In Oct.	8/30/2018	LATE	
21	XXXXXXX	Verified In Oct.	7/19/2018	LATE	
24	XXXXXXX	Verified In Oct.	8/14/2018	LATE	
25	XXXXXXX	Verified In Oct.	8/14/2018	LATE	
26	XXXXXXX	Verified In Oct.	8/14/2018	LATE	
27	XXXXXXX	Verified In Oct.	8/28/2018	LATE	
30	XXXXXXX	Verified In Oct.	8/22/2018	LATE	
34	XXXXXXX	Verified In Oct.	7/10/2018	LATE	
37	XXXXXXX	Verified In Oct.	8/1/2018	LATE	
38	XXXXXXX	Verified In Oct.	8/1/2018	LATE	
39	XXXXXXX	Verified In Oct.	8/1/2018	LATE	
40	XXXXXXX	Verified In Oct.	8/1/2018	LATE	
41	XXXXXXX	Verified In Oct.	8/1/2018	LATE	
43	XXXXXXX	Verified In Oct.	8/7/2018	LATE	
46	XXXXXXX	Verified In Oct.	8/16/2018	LATE	
49	XXXXXXX	Verified In Oct.	8/23/2018	LATE	
50	XXXXXXX	Verified In Oct.	8/28/2018	LATE	
51	XXXXXXX	Verified In Oct.	8/28/2018	LATE	
66	XXXXXXX	Verified In Oct.	7/18/2018	LATE	
67	XXXXXXX	Verified In Oct.	7/23/2018	LATE	
68	XXXXXXX	Verified In Oct.	8/28/2018	LATE	
72	XXXXXXX	Verified In Oct.	8/5/2018	LATE	
73	XXXXXXX	Verified In Oct.	8/6/2018	LATE	
74	XXXXXXX	Verified In Oct.	8/7/2018	LATE	
75	XXXXXXX	Verified In Oct.	8/30/2018	LATE	
77	XXXXXXX	Verified In Oct.	8/5/2018	LATE	
78	XXXXXXX	Verified In Oct.	8/13/2018	LATE	
79	XXXXXXX	Verified In Oct.	8/22/2018	LATE	
83	XXXXXXX	Verified In Oct.	8/22/2018	LATE	
84	XXXXXXX	Verified In Oct.	8/8/2018	LATE	
90	XXXXXXX	Verified In Oct.	7/29/2018	LATE	
91	XXXXXXX	Verified In Oct.	8/1/2018	LATE	

Line Item	**Serial**	**Verified In October**	**Due Date**	**LATE**	**Cost**
93	XXXXXXX	Verified In Oct.	8/14/2018	LATE	
94	XXXXXXX	Verified In Oct.	8/14/2018	LATE	
95	XXXXXXX	Verified In Oct.	8/16/2018	LATE	
96	XXXXXXX	Verified In Oct.	8/22/2018	LATE	
97	XXXXXXX	Verified In Oct.	8/22/2018	LATE	
105	XXXXXXX	Verified In Oct.	8/23/2018	LATE	
106	XXXXXXX	Verified In Oct.	8/23/2018	LATE	
109	XXXXXXX	Verified In Oct.	7/22/2018	LATE	
110	XXXXXXX	Verified In Oct.	7/29/2018	LATE	
120	XXXXXXX	Verified In Oct.	8/13/2018	LATE	
132	XXXXXXX	Verified In Oct.	7/29/2018	LATE	
133	XXXXXXX	Verified In Oct.	8/2/2018	LATE	
134	XXXXXXX	Verified In Oct.	8/2/2018	LATE	
135	XXXXXXX	Verified In Oct.	8/6/2018	LATE	
136	XXXXXXX	Verified In Oct.	8/16/2018	LATE	
141	XXXXXXX	Verified In Oct.	8/5/2018	LATE	
152	XXXXXXX	Verified In Oct.	8/5/2018	LATE	
154	XXXXXXX	Verified In Oct.	8/8/2018	LATE	
177	XXXXXXX	Verified In Oct.	8/16/2018	LATE	
184	XXXXXXX	Verified In Oct.	7/12/2018	LATE	XXXXXXX
189	XXXXXXX	Verified In Oct.	8/7/2018	LATE	XXXXXXX
199	XXXXXXX	Verified In Oct.	7/16/2018	LATE	XXXXXXX
200	XXXXXXX	Verified In Oct.	8/7/2018	LATE	XXXXXXX
201	XXXXXXX	Verified In Oct.	8/8/2018	LATE	XXXXXXX
210	XXXXXXX	Verified In Oct.	4/9/2018	LATE	
231	XXXXXXX	Verified In Oct.	8/12/2018	LATE	
238	XXXXXXX	Verified In Oct.	1/26/2018	LATE	XXXXXXX
239	XXXXXXX	Verified In Oct.	7/29/2018	LATE	XXXXXXX
249	XXXXXXX	Verified In Oct.	8/28/2018	LATE	
251	XXXXXXX	Verified In Oct.	8/23/2018	LATE	
265	XXXXXXX	Verified In Oct.	8/21/2018	LATE	
270	XXXXXXX	Verified In Oct.	8/21/2018	LATE	
272	XXXXXXX	Verified In Oct.	8/22/2018	LATE	
273	XXXXXXX	Verified In Oct.	8/30/2018	LATE	
287	XXXXXXX	Verified In Oct.	8/30/2018	LATE	
289	XXXXXXX	Verified In Oct.	8/8/2018	LATE	
290	XXXXXXX	Verified In Oct.	8/30/2018	LATE	
291	XXXXXXX	Verified In Oct.	8/14/2018	LATE	
292	XXXXXXX	Verified In Oct.	8/14/2018	LATE	
317	XXXXXXX	Verified In Oct.	8/9/2018	LATE	
319	XXXXXXX	Verified In Oct.	8/28/2018	LATE	

Line Item	Serial	Verified In October	Due Date	LATE	Cost
339	XXXXXXX	Verified In Oct.	8/7/2018	LATE	
345	XXXXXXX	Verified In Oct.	7/16/2018	LATE	
347	XXXXXXX	Verified In Oct.	8/2/2018	LATE	
349	XXXXXXX	Verified In Oct.	8/7/2018	LATE	
350	XXXXXXX	Verified In Oct.	8/7/2018	LATE	
351	XXXXXXX	Verified In Oct.	8/7/2018	LATE	
363	XXXXXXX	Verified In Oct.	8/6/2018	LATE	
392	XXXXXXX	Verified In Oct.	8/1/2018	LATE	
393	XXXXXXX	Verified In Oct.	7/29/2018	LATE	XXXXXXX
394	XXXXXXX	Verified In Oct.	8/8/2018	LATE	XXXXXXX
396	XXXXXXX	Verified In Oct.	8/9/2018	LATE	XXXXXXX
401	XXXXXXX	Verified In Oct.	8/15/2018	LATE	XXXXXXX
423	XXXXXXX	Verified In Oct.	8/6/2018	LATE	XXXXXXX
424	XXXXXXX	Verified In Oct.	8/19/2018	LATE	
425	XXXXXXX	Verified In Oct.	8/19/2018	LATE	XXXXXXX
444	XXXXXXX	Verified In Oct.	8/12/2018	LATE	
461	XXXXXXX	Verified In Oct.	7/30/2018	LATE	
462	XXXXXXX	Verified In Oct.	8/8/2018	LATE	
478	XXXXXXX	Verified In Oct.	7/30/2018	LATE	
483	XXXXXXX	Verified In Oct.	8/12/2018	LATE	
485	XXXXXXX	Verified In Oct.	8/16/2018	LATE	
493	XXXXXXX	Verified In Oct.	8/30/2018	LATE	
506	XXXXXXX	Verified In Oct.	7/29/2018	LATE	
507	XXXXXXX	Verified In Oct.	7/29/2018	LATE	
508	XXXXXXX	Verified In Oct.	8/2/2018	LATE	
510	XXXXXXX	Verified In Oct.	8/8/2018	LATE	
511	XXXXXXX	Verified In Oct.	8/8/2018	LATE	
515	XXXXXXX	Verified In Oct.	10/29/2017	LATE	
516	XXXXXXX	Verified In Oct.	10/29/2017	LATE	
528	XXXXXXX	Verified In Oct.	7/10/2018	LATE	
529	XXXXXXX	Verified In Oct.	7/18/2018	LATE	
530	XXXXXXX	Verified In Oct.	8/6/2018	LATE	
554	XXXXXXX	Verified In Oct.	8/5/2018	LATE	
555	XXXXXXX	Verified In Oct.	8/14/2018	LATE	
557	XXXXXXX	Verified In Oct.	8/22/2018	LATE	
562	XXXXXXX	Verified In Oct.	8/13/2018	LATE	
564	XXXXXXX	Verified In Oct.	8/28/2018	LATE	
580	XXXXXXX	Verified In Oct.	8/27/2018	LATE	XXXXXXX
611	XXXXXXX	Verified In Oct.	9/11/2017	LATE	
612	XXXXXXX	Verified In Oct.	9/11/2017	LATE	
619	XXXXXXX	Verified In Oct.	7/9/2018	LATE	

Line Item	Serial	Verified In October	Due Date	LATE	Cost
621	XXXXXXX	Verified In Oct.	8/6/2018	LATE	
634	XXXXXXX	Verified In Oct.	7/23/2018	LATE	
641	XXXXXXX	Verified In Oct.	8/30/2018	LATE	
644	XXXXXXX	Verified In Oct.	8/8/2018	LATE	
645	XXXXXXX	Verified In Oct.	8/8/2018	LATE	
647	XXXXXXX	Verified In Oct.	8/16/2018	LATE	
651	XXXXXXX	Verified In Oct.	7/2/2018	LATE	
660	XXXXXXX	Verified In Oct.	8/6/2018	LATE	
661	XXXXXXX	Verified In Oct.	8/8/2018	LATE	
671	XXXXXXX	Verified In Oct.	8/23/2018	LATE	

D.6 VERIFIED IN NOVEMBER

Line Item	Serial	Verified In November	Due Date	LATE	Cost
23	XXXXXXXX	Verified In Nov.	8/20/2018	LATE	
34	XXXXXXXX	Verified In Nov.	9/3/2018	LATE	XXXXXXX
37	XXXXXXXX	Verified In Nov.	8/30/2018	LATE	
52	XXXXXXXX	Verified In Nov.	8/23/2018	LATE	
64	XXXXXXXX	Verified In Nov.	8/20/2018	LATE	
65	XXXXXXXX	Verified In Nov.	8/13/2018	LATE	
87	XXXXXXXX	Verified In Nov.	7/29/2018	LATE	XXXXXXX
97	XXXXXXXX	Verified In Nov.	8/6/2018	LATE	
116	XXXXXXXX	Verified In Nov.	9/11/2018	LATE	
132	XXXXXXXX	Verified In Nov.	9/17/2017	LATE	
133	XXXXXXXX	Verified In Nov.	8/22/2018	LATE	
134	XXXXXXXX	Verified In Nov.	9/10/2018	LATE	
143	XXXXXXXX	Verified In Nov.	8/15/2018	LATE	XXXXXXX
144	XXXXXXXX	Verified In Nov.	8/22/2018	LATE	XXXXXXX
190	XXXXXXXX	Verified In Nov.	8/13/2018	LATE	
195	XXXXXXXX	Verified In Nov.	2/10/2014	LATE	
202	XXXXXXXX	Verified In Nov.	8/21/2018	LATE	
207	XXXXXXXX	Verified In Nov.	8/16/2018	LATE	
257	XXXXXXXX	Verified In Nov.	9/5/2018	LATE	
258	XXXXXXXX	Verified In Nov.	9/9/2018	LATE	
264	XXXXXXXX	Verified In Nov.	8/20/2018	LATE	
277	XXXXXXXX	Verified In Nov.	10/21/2018	LATE	XXXXXXX
344	XXXXXXXX	Verified In Nov.	9/17/2018	LATE	
345	XXXXXXXX	Verified In Nov.	9/17/2018	LATE	
401	XXXXXXXX	Verified In Nov.	8/5/2018	LATE	
424	XXXXXXXX	Verified In Nov.	8/8/2018	LATE	
425	XXXXXXXX	Verified In Nov.	9/3/2018	LATE	
443	XXXXXXXX	Verified In Nov.	8/15/2018	LATE	
449	XXXXXXXX	Verified In Nov.	8/15/2018	LATE	
463	XXXXXXXX	Verified In Nov.	9/20/2018	LATE	
490	XXXXXXXX	Verified In Nov.	12/5/2017	LATE	
498	XXXXXXXX	Verified In Nov.	1/15/2018	LATE	
531	XXXXXXXX	Verified In Nov.	8/5/2018	LATE	
534	XXXXXXXX	Verified In Nov.	8/20/2018	LATE	
545	XXXXXXXX	Verified In Nov.	8/30/2018	LATE	
568	XXXXXXXX	Verified In Nov.	8/28/2018	LATE	XXXXXXX
569	XXXXXXXX	Verified In Nov.	8/28/2018	LATE	

D.7 VERIFIED IN DECEMBER

Line Item	Serial	Verified In December	Due Date	LATE	Cost
639	XXXXXXXX	Verified In Dec.	9/3/2018	LATE	
638	XXXXXXXX	Verified In Dec.	8/15/2018	LATE	
637	XXXXXXXX	Verified In Dec.	7/25/2018	LATE	
635	XXXXXXXX	Verified In Dec.	9/9/2018	LATE	
634	XXXXXXXX	Verified In Dec.	8/22/2018	LATE	
629	XXXXXXXX	Verified In Dec.	10/21/2018	LATE	
628	XXXXXXXX	Verified In Dec.	9/12/2018	LATE	
627	XXXXXXXX	Verified In Dec.	9/10/2018	LATE	
626	XXXXXXXX	Verified In Dec.	9/10/2018	LATE	
625	XXXXXXXX	Verified In Dec.	9/10/2018	LATE	
624	XXXXXXXX	Verified In Dec.	9/5/2018	LATE	
623	XXXXXXXX	Verified In Dec.	9/5/2018	LATE	
622	XXXXXXXX	Verified In Dec.	9/2/2018	LATE	
621	XXXXXXXX	Verified In Dec.	9/2/2018	LATE	
620	XXXXXXXX	Verified In Dec.	8/28/2018	LATE	
619	XXXXXXXX	Verified In Dec.	8/28/2018	LATE	
618	XXXXXXXX	Verified In Dec.	8/28/2018	LATE	
617	XXXXXXXX	Verified In Dec.	8/23/2018	LATE	
616	XXXXXXXX	Verified In Dec.	8/20/2018	LATE	
615	XXXXXXXX	Verified In Dec.	8/20/2018	LATE	
614	XXXXXXXX	Verified In Dec.	8/20/2018	LATE	
610	XXXXXXXX	Verified In Dec.	7/16/2018	LATE	
609	XXXXXXXX	Verified In Dec.	1/10/2018	LATE	
604	XXXXXXXX	Verified In Dec.	9/26/2018	LATE	
603	XXXXXXXX	Verified In Dec.	8/30/2018	LATE	
602	XXXXXXXX	Verified In Dec.	8/7/2018	LATE	
598	XXXXXXXX	Verified In Dec.	9/13/2018	LATE	
597	XXXXXXXX	Verified In Dec.	8/22/2018	LATE	
594	XXXXXXXX	Verified In Dec.	11/5/2018	LATE	
593	XXXXXXXX	Verified In Dec.	8/23/2018	LATE	
592	XXXXXXXX	Verified In Dec.	8/21/2018	LATE	
587	XXXXXXXX	Verified In Dec.	11/18/2018	LATE	
586	XXXXXXXX	Verified In Dec.	8/30/2018	LATE	
585	XXXXXXXX	Verified In Dec.	8/22/2018	LATE	
584	XXXXXXXX	Verified In Dec.	8/16/2018	LATE	
583	XXXXXXXX	Verified In Dec.	8/16/2018	LATE	
582	XXXXXXXX	Verified In Dec.	7/24/2018	LATE	
581	XXXXXXXX	Verified In Dec.	8/21/2018	LATE	XXXXXX
576	XXXXXXXX	Verified In Dec.	8/1/2018	LATE	

Line Item	Serial	Verified In December	Due Date	LATE	Cost
575	XXXXXXXX	Verified In Dec.	8/1/2018	LATE	
566	XXXXXXXX	Verified In Dec.	8/22/2018	LATE	
565	XXXXXXXX	Verified In Dec.	8/22/2018	LATE	
564	XXXXXXXX	Verified In Dec.	8/7/2018	LATE	
563	XXXXXXXX	Verified In Dec.	8/7/2018	LATE	
562	XXXXXXXX	Verified In Dec.	8/1/2018	LATE	
561	XXXXXXXX	Verified In Dec.	7/29/2018	LATE	
560	XXXXXXXX	Verified In Dec.	7/16/2018	LATE	
558	XXXXXXXX	Verified In Dec.	7/5/2018	LATE	
557	XXXXXXXX	Verified In Dec.	7/1/2018	LATE	
556	XXXXXXXX	Verified In Dec.	10/1/2017	LATE	
555	XXXXXXXX	Verified In Dec.	10/1/2017	LATE	
551	XXXXXXXX	Verified In Dec.	11/4/2018	LATE	
548	XXXXXXXX	Verified In Dec.	8/23/2018	LATE	
547	XXXXXXXX	Verified In Dec.	8/14/2018	LATE	
546	XXXXXXXX	Verified In Dec.	8/7/2018	LATE	
545	XXXXXXXX	Verified In Dec.	7/16/2018	LATE	
544	XXXXXXXX	Verified In Dec.	1/18/2018	LATE	
543	XXXXXXXX	Verified In Dec.	10/4/2017	LATE	
542	XXXXXXXX	Verified In Dec.	10/1/2017	LATE	
541	XXXXXXXX	Verified In Dec.	9/25/2017	LATE	
540	XXXXXXXX	Verified In Dec.	9/20/2017	LATE	
538	XXXXXXXX	Verified In Dec.	8/30/2018	LATE	
537	XXXXXXXX	Verified In Dec.	8/15/2018	LATE	
536	XXXXXXXX	Verified In Dec.	7/29/2018	LATE	
533	XXXXXXXX	Verified In Dec.	8/6/2017	LATE	
531	XXXXXXXX	Verified In Dec.	9/20/2018	LATE	
526	XXXXXXXX	Verified In Dec.	8/7/2018	LATE	
523	XXXXXXXX	Verified In Dec.	11/18/2018	LATE	
522	XXXXXXXX	Verified In Dec.	8/16/2018	LATE	
521	XXXXXXXX	Verified In Dec.	8/5/2018	LATE	
520	XXXXXXXX	Verified In Dec.	7/3/2016	LATE	
519	XXXXXXXX	Verified In Dec.	10/21/2018	LATE	
518	XXXXXXXX	Verified In Dec.	7/11/2017	LATE	
517	XXXXXXXX	Verified In Dec.	7/9/2018	LATE	
514	XXXXXXXX	Verified In Dec.	10/27/2018	LATE	
513	XXXXXXXX	Verified In Dec.	11/20/2018	LATE	
512	XXXXXXXX	Verified In Dec.	8/30/2017	LATE	
511	XXXXXXXX	Verified In Dec.	2/1/2016	LATE	
510	XXXXXXXX	Verified In Dec.	1/25/2016	LATE	
509	XXXXXXXX	Verified In Dec.	12/2/2015	LATE	
504	XXXXXXXX	Verified In Dec.	7/22/2018	LATE	

Line Item	Serial	Verified In December	Due Date	LATE	Cost
502	XXXXXXXX	Verified In Dec.	8/6/2017	LATE	
501	XXXXXXXX	Verified In Dec.	2/7/2016	LATE	
500	XXXXXXXX	Verified In Dec.	1/13/2016	LATE	
499	XXXXXXXX	Verified In Dec.	7/26/2012	LATE	
498	XXXXXXXX	Verified In Dec.	2/17/2016	LATE	
497	XXXXXXXX	Verified In Dec.	1/24/2016	LATE	
496	XXXXXXXX	Verified In Dec.	3/29/2015	LATE	
495	XXXXXXXX	Verified In Dec.	3/5/2015	LATE	
494	XXXXXXXX	Verified In Dec.	1/22/2014	LATE	
492	XXXXXXXX	Verified In Dec.	7/17/2018	LATE	XXXXXX
491	XXXXXXXX	Verified In Dec.	9/19/2018	LATE	
490	XXXXXXXX	Verified In Dec.	9/12/2018	LATE	
487	XXXXXXXX	Verified In Dec.	9/17/2018	LATE	
486	XXXXXXXX	Verified In Dec.	9/9/2018	LATE	
485	XXXXXXXX	Verified In Dec.	9/5/2017	LATE	
484	XXXXXXXX	Verified In Dec.	9/3/2017	LATE	
483	XXXXXXXX	Verified In Dec.	7/31/2017	LATE	
482	XXXXXXXX	Verified In Dec.	7/18/2017	LATE	
476	XXXXXXXX	Verified In Dec.	10/27/2018	LATE	
475	XXXXXXXX	Verified In Dec.	10/15/2018	LATE	
473	XXXXXXXX	Verified In Dec.	8/9/2018	LATE	
471	XXXXXXXX	Verified In Dec.	9/3/2018	LATE	
470	XXXXXXXX	Verified In Dec.	1/16/2017	LATE	
469	XXXXXXXX	Verified In Dec.	9/9/2018	LATE	
468	XXXXXXXX	Verified In Dec.	9/9/2018	LATE	
464	XXXXXXXX	Verified In Dec.	9/16/2018	LATE	
455	XXXXXXXX	Verified In Dec.	11/5/2018	LATE	
454	XXXXXXXX	Verified In Dec.	9/3/2018	LATE	
453	XXXXXXXX	Verified In Dec.	8/22/2018	LATE	
452	XXXXXXXX	Verified In Dec.	8/8/2018	LATE	
451	XXXXXXXX	Verified In Dec.	7/29/2018	LATE	
448	XXXXXXXX	Verified In Dec.	8/2/2018	LATE	
447	XXXXXXXX	Verified In Dec.	12/5/2017	LATE	
446	XXXXXXXX	Verified In Dec.	9/13/2018	LATE	
445	XXXXXXXX	Verified In Dec.	9/9/2018	LATE	
444	XXXXXXXX	Verified In Dec.	7/25/2018	LATE	
439	XXXXXXXX	Verified In Dec.	4/25/2018	LATE	
436	XXXXXXXX	Verified In Dec.	8/14/2018	LATE	
435	XXXXXXXX	Verified In Dec.	8/31/2017	LATE	
434	XXXXXXXX	Verified In Dec.	11/18/2018	LATE	
433	XXXXXXXX	Verified In Dec.	10/1/2018	LATE	
428	XXXXXXXX	Verified In Dec.	9/3/2018	LATE	

Line Item	Serial	Verified In December	Due Date	LATE	Cost
426	XXXXXXXX	Verified In Dec.	8/28/2018	LATE	
425	XXXXXXXX	Verified In Dec.	8/28/2018	LATE	
424	XXXXXXXX	Verified In Dec.	8/22/2018	LATE	
423	XXXXXXXX	Verified In Dec.	8/20/2018	LATE	
422	XXXXXXXX	Verified In Dec.	8/20/2018	LATE	
421	XXXXXXXX	Verified In Dec.	8/20/2018	LATE	
418	XXXXXXXX	Verified In Dec.	8/8/2018	LATE	
417	XXXXXXXX	Verified In Dec.	8/5/2018	LATE	
416	XXXXXXXX	Verified In Dec.	8/5/2018	LATE	
415	XXXXXXXX	Verified In Dec.	7/30/2018	LATE	
414	XXXXXXXX	Verified In Dec.	7/16/2018	LATE	
413	XXXXXXXX	Verified In Dec.	7/16/2018	LATE	
412	XXXXXXXX	Verified In Dec.	7/16/2018	LATE	
409	XXXXXXXX	Verified In Dec.	10/21/2018	LATE	
407	XXXXXXXX	Verified In Dec.	9/3/2018	LATE	
406	XXXXXXXX	Verified In Dec.	8/28/2018	LATE	
405	XXXXXXXX	Verified In Dec.	8/28/2018	LATE	
404	XXXXXXXX	Verified In Dec.	8/28/2018	LATE	
403	XXXXXXXX	Verified In Dec.	8/21/2018	LATE	
401	XXXXXXXX	Verified In Dec.	8/20/2018	LATE	
400	XXXXXXXX	Verified In Dec.	8/20/2018	LATE	
399	XXXXXXXX	Verified In Dec.	8/16/2018	LATE	
397	XXXXXXXX	Verified In Dec.	7/26/2018	LATE	
396	XXXXXXXX	Verified In Dec.	7/24/2018	LATE	
393	XXXXXXXX	Verified In Dec.	8/28/2018	LATE	
392	XXXXXXXX	Verified In Dec.	8/27/2018	LATE	
391	XXXXXXXX	Verified In Dec.	4/29/2018	LATE	
390	XXXXXXXX	Verified In Dec.	9/18/2017	LATE	
389	XXXXXXXX	Verified In Dec.	9/20/2018	LATE	
388	XXXXXXXX	Verified In Dec.	8/30/2018	LATE	
387	XXXXXXXX	Verified In Dec.	8/21/2018	LATE	
386	XXXXXXXX	Verified In Dec.	8/21/2018	LATE	
383	XXXXXXXX	Verified In Dec.	7/12/2018	LATE	
381	XXXXXXXX	Verified In Dec.	11/12/2018	LATE	
379	XXXXXXXX	Verified In Dec.	9/10/2018	LATE	
378	XXXXXXXX	Verified In Dec.	8/8/2018	LATE	
377	XXXXXXXX	Verified In Dec.	6/27/2018	LATE	
376	XXXXXXXX	Verified In Dec.	11/7/2018	LATE	
375	XXXXXXXX	Verified In Dec.	8/14/2018	LATE	
374	XXXXXXXX	Verified In Dec.	7/24/2018	LATE	
373	XXXXXXXX	Verified In Dec.	9/9/2018	LATE	
372	XXXXXXXX	Verified In Dec.	9/9/2018	LATE	

Line Item	Serial	Verified In December	Due Date	LATE	Cost
370	XXXXXXXX	Verified In Dec.	10/9/2018	LATE	
369	XXXXXXXX	Verified In Dec.	9/3/2018	LATE	
368	XXXXXXXX	Verified In Dec.	8/21/2018	LATE	
367	XXXXXXXX	Verified In Dec.	8/7/2018	LATE	
366	XXXXXXXX	Verified In Dec.	9/11/2018	LATE	
365	XXXXXXXX	Verified In Dec.	7/8/2018	LATE	
361	XXXXXXXX	Verified In Dec.	7/18/2017	LATE	
357	XXXXXXXX	Verified In Dec.	11/5/2018	LATE	
356	XXXXXXXX	Verified In Dec.	10/27/2018	LATE	
353	XXXXXXXX	Verified In Dec.	9/19/2018	LATE	
352	XXXXXXXX	Verified In Dec.	9/3/2018	LATE	
351	XXXXXXXX	Verified In Dec.	8/22/2018	LATE	
349	XXXXXXXX	Verified In Dec.	8/6/2018	LATE	
345	XXXXXXXX	Verified In Dec.	8/8/2018	LATE	
343	XXXXXXXX	Verified In Dec.	10/21/2018	LATE	
342	XXXXXXXX	Verified In Dec.	9/3/2018	LATE	
341	XXXXXXXX	Verified In Dec.	8/21/2018	LATE	
340	XXXXXXXX	Verified In Dec.	8/14/2018	LATE	
339	XXXXXXXX	Verified In Dec.	8/9/2018	LATE	
338	XXXXXXXX	Verified In Dec.	8/5/2018	LATE	XXXXXX
335	XXXXXXXX	Verified In Dec.	8/15/2018	LATE	
334	XXXXXXXX	Verified In Dec.	8/8/2018	LATE	
333	XXXXXXXX	Verified In Dec.	9/20/2018	LATE	
332	XXXXXXXX	Verified In Dec.	9/11/2018	LATE	
331	XXXXXXXX	Verified In Dec.	9/5/2018	LATE	
330	XXXXXXXX	Verified In Dec.	8/12/2018	LATE	
329	XXXXXXXX	Verified In Dec.	8/12/2018	LATE	
328	XXXXXXXX	Verified In Dec.	7/24/2018	LATE	
327	XXXXXXXX	Verified In Dec.	7/24/2018	LATE	
326	XXXXXXXX	Verified In Dec.	7/24/2018	LATE	
325	XXXXXXXX	Verified In Dec.	7/5/2018	LATE	
323	XXXXXXXX	Verified In Dec.	11/20/2018	LATE	
322	XXXXXXXX	Verified In Dec.	9/5/2018	LATE	
321	XXXXXXXX	Verified In Dec.	8/12/2018	LATE	
320	XXXXXXXX	Verified In Dec.	8/12/2018	LATE	
319	XXXXXXXX	Verified In Dec.	8/8/2018	LATE	
318	XXXXXXXX	Verified In Dec.	7/18/2018	LATE	
317	XXXXXXXX	Verified In Dec.	7/9/2018	LATE	
316	XXXXXXXX	Verified In Dec.	7/1/2018	LATE	
315	XXXXXXXX	Verified In Dec.	9/25/2017	LATE	
314	XXXXXXXX	Verified In Dec.	9/25/2017	LATE	
313	XXXXXXXX	Verified In Dec.	9/11/2017	LATE	

Line Item	Serial	Verified In December	Due Date	LATE	Cost
311	XXXXXXXX	Verified In Dec.	8/31/2017	LATE	
308	XXXXXXXX	Verified In Dec.	7/22/2018	LATE	
305	XXXXXXXX	Verified In Dec.	9/17/2018	LATE	
304	XXXXXXXX	Verified In Dec.	9/3/2017	LATE	
302	XXXXXXXX	Verified In Dec.	8/28/2018	LATE	
301	XXXXXXXX	Verified In Dec.	8/28/2018	LATE	
300	XXXXXXXX	Verified In Dec.	8/14/2018	LATE	
298	XXXXXXXX	Verified In Dec.	7/29/2018	LATE	
297	XXXXXXXX	Verified In Dec.	7/10/2018	LATE	
296	XXXXXXXX	Verified In Dec.	7/8/2018	LATE	
284	XXXXXXXX	Verified In Dec.	9/23/2018	LATE	
283	XXXXXXXX	Verified In Dec.	9/10/2018	LATE	
282	XXXXXXXX	Verified In Dec.	8/2/2018	LATE	
281	XXXXXXXX	Verified In Dec.	9/10/2018	LATE	
280	XXXXXXXX	Verified In Dec.	7/29/2018	LATE	
279	XXXXXXXX	Verified In Dec.	8/8/2018	LATE	
278	XXXXXXXX	Verified In Dec.	7/29/2018	LATE	
277	XXXXXXXX	Verified In Dec.	7/29/2018	LATE	
275	XXXXXXXX	Verified In Dec.	9/18/2018	LATE	
268	XXXXXXXX	Verified In Dec.	5/4/2018	LATE	
266	XXXXXXXX	Verified In Dec.	8/28/2018	LATE	
265	XXXXXXXX	Verified In Dec.	9/2/2018	LATE	
264	XXXXXXXX	Verified In Dec.	11/14/2017	LATE	
261	XXXXXXXX	Verified In Dec.	8/23/2018	LATE	
260	XXXXXXXX	Verified In Dec.	8/14/2018	LATE	
259	XXXXXXXX	Verified In Dec.	8/14/2018	LATE	
258	XXXXXXXX	Verified In Dec.	11/12/2017	LATE	
257	XXXXXXXX	Verified In Dec.	9/23/2015	LATE	
256	XXXXXXXX	Verified In Dec.	9/11/2018	LATE	
255	XXXXXXXX	Verified In Dec.	9/5/2018	LATE	
253	XXXXXXXX	Verified In Dec.	8/16/2018	LATE	
252	XXXXXXXX	Verified In Dec.	8/15/2018	LATE	
251	XXXXXXXX	Verified In Dec.	8/14/2018	LATE	
249	XXXXXXXX	Verified In Dec.	8/14/2018	LATE	
248	XXXXXXXX	Verified In Dec.	8/14/2018	LATE	
247	XXXXXXXX	Verified In Dec.	8/14/2018	LATE	
246	XXXXXXXX	Verified In Dec.	8/8/2018	LATE	
245	XXXXXXXX	Verified In Dec.	6/18/2018	LATE	
240	XXXXXXXX	Verified In Dec.	10/8/2018	LATE	
238	XXXXXXXX	Verified In Dec.	9/3/2018	LATE	
237	XXXXXXXX	Verified In Dec.	8/28/2018	LATE	
234	XXXXXXXX	Verified In Dec.	8/8/2018	LATE	

Line Item	Serial	Verified In December	Due Date	LATE	Cost
232	XXXXXXXX	Verified In Dec.	9/5/2018	LATE	
231	XXXXXXXX	Verified In Dec.	5/9/2013	LATE	
230	XXXXXXXX	Verified In Dec.	10/23/2018	LATE	
229	XXXXXXXX	Verified In Dec.	8/20/2018	LATE	
228	XXXXXXXX	Verified In Dec.	8/30/2018	LATE	
227	XXXXXXXX	Verified In Dec.	8/30/2018	LATE	
225	XXXXXXXX	Verified In Dec.	9/3/2018	LATE	
224	XXXXXXXX	Verified In Dec.	8/21/2018	LATE	
220	XXXXXXXX	Verified In Dec.	8/14/2018	LATE	
218	XXXXXXXX	Verified In Dec.	9/20/2018	LATE	
213	XXXXXXXX	Verified In Dec.	11/11/2018	LATE	
212	XXXXXXXX	Verified In Dec.	12/9/2012	LATE	
211	XXXXXXXX	Verified In Dec.	11/5/2018	LATE	
210	XXXXXXXX	Verified In Dec.	11/11/2018	LATE	
209	XXXXXXXX	Verified In Dec.	7/18/2018	LATE	
208	XXXXXXXX	Verified In Dec.	12/30/2013	LATE	
207	XXXXXXXX	Verified In Dec.	9/3/2018	LATE	
206	XXXXXXXX	Verified In Dec.	8/15/2018	LATE	
205	XXXXXXXX	Verified In Dec.	7/25/2018	LATE	
197	XXXXXXXX	Verified In Dec.	3/6/2014	LATE	
186	XXXXXXXX	Verified In Dec.	11/18/2018	LATE	
185	XXXXXXXX	Verified In Dec.	9/20/2018	LATE	
179	XXXXXXXX	Verified In Dec.	8/23/2018	LATE	
178	XXXXXXXX	Verified In Dec.	3/21/2018	LATE	
177	XXXXXXXX	Verified In Dec.	8/14/2018	LATE	
176	XXXXXXXX	Verified In Dec.	7/22/2018	LATE	
175	XXXXXXXX	Verified In Dec.	11/12/2018	LATE	
174	XXXXXXXX	Verified In Dec.	7/30/2018	LATE	
172	XXXXXXXX	Verified In Dec.	9/9/2018	LATE	
163	XXXXXXXX	Verified In Dec.	9/5/2018	LATE	
162	XXXXXXXX	Verified In Dec.	8/30/2018	LATE	XXXXXX
160	XXXXXXXX	Verified In Dec.	8/9/2018	LATE	
159	XXXXXXXX	Verified In Dec.	8/21/2018	LATE	
158	XXXXXXXX	Verified In Dec.	9/20/2018	LATE	
157	XXXXXXXX	Verified In Dec.	9/3/2018	LATE	XXXXXX
156	XXXXXXXX	Verified In Dec.	8/6/2018	LATE	
155	XXXXXXXX	Verified In Dec.	9/13/2018	LATE	
154	XXXXXXXX	Verified In Dec.	9/10/2017	LATE	
150	XXXXXXXX	Verified In Dec.	11/20/2018	LATE	XXXXXX
149	XXXXXXXX	Verified In Dec.	9/9/2018	LATE	
148	XXXXXXXX	Verified In Dec.	8/14/2018	LATE	XXXXXX
147	XXXXXXXX	Verified In Dec.	8/12/2018	LATE	XXXXXX

Line Item	Serial	Verified In December	Due Date	LATE	Cost
143	XXXXXXXX	Verified In Dec.	11/20/2018	LATE	XXXXXX
142	XXXXXXXX	Verified In Dec.	9/13/2018	LATE	
141	XXXXXXXX	Verified In Dec.	8/13/2018	LATE	
137	XXXXXXXX	Verified In Dec.	11/20/2018	LATE	
136	XXXXXXXX	Verified In Dec.	10/21/2018	LATE	
135	XXXXXXXX	Verified In Dec.	10/21/2018	LATE	
134	XXXXXXXX	Verified In Dec.	3/19/2017	LATE	
133	XXXXXXXX	Verified In Dec.	9/12/2016	LATE	
130	XXXXXXXX	Verified In Dec.	9/9/2018	LATE	
129	XXXXXXXX	Verified In Dec.	9/9/2018	LATE	
126	XXXXXXXX	Verified In Dec.	8/12/2018	LATE	
124	XXXXXXXX	Verified In Dec.	8/6/2018	LATE	
123	XXXXXXXX	Verified In Dec.	8/1/2018	LATE	
122	XXXXXXXX	Verified In Dec.	9/3/2018	LATE	
121	XXXXXXXX	Verified In Dec.	7/29/2012	LATE	
120	XXXXXXXX	Verified In Dec.	8/8/2018	LATE	
115	XXXXXXXX	Verified In Dec.	11/11/2018	LATE	
114	XXXXXXXX	Verified In Dec.	10/27/2018	LATE	
109	XXXXXXXX	Verified In Dec.	9/3/2018	LATE	
107	XXXXXXXX	Verified In Dec.	8/9/2018	LATE	
103	XXXXXXXX	Verified In Dec.	8/21/2018	LATE	
101	XXXXXXXX	Verified In Dec.	8/2/2018	LATE	
98	XXXXXXXX	Verified In Dec.	2/3/2018	LATE	
97	XXXXXXXX	Verified In Dec.	11/4/2018	LATE	
96	XXXXXXXX	Verified In Dec.	11/4/2018	LATE	
95	XXXXXXXX	Verified In Dec.	8/16/2018	LATE	
94	XXXXXXXX	Verified In Dec.	8/1/2018	LATE	
93	XXXXXXXX	Verified In Dec.	6/27/2018	LATE	
92	XXXXXXXX	Verified In Dec.	4/2/2018	LATE	
91	XXXXXXXX	Verified In Dec.	4/2/2018	LATE	
90	XXXXXXXX	Verified In Dec.	8/2/2018	LATE	
89	XXXXXXXX	Verified In Dec.	7/25/2017	LATE	
86	XXXXXXXX	Verified In Dec.	9/20/2018	LATE	
83	XXXXXXXX	Verified In Dec.	9/11/2018	LATE	
82	XXXXXXXX	Verified In Dec.	9/3/2018	LATE	
81	XXXXXXXX	Verified In Dec.	9/3/2018	LATE	
80	XXXXXXXX	Verified In Dec.	7/23/2018	LATE	
79	XXXXXXXX	Verified In Dec.	7/23/2018	LATE	
78	XXXXXXXX	Verified In Dec.	11/5/2018	LATE	
77	XXXXXXXX	Verified In Dec.	11/4/2018	LATE	
76	XXXXXXXX	Verified In Dec.	11/4/2018	LATE	
75	XXXXXXXX	Verified In Dec.	10/10/2018	LATE	

Line Item	Serial	Verified In December	Due Date	LATE	Cost
73	XXXXXXXX	Verified In Dec.	9/12/2018	LATE	
72	XXXXXXXX	Verified In Dec.	8/6/2018	LATE	
71	XXXXXXXX	Verified In Dec.	10/1/2018	LATE	
70	XXXXXXXX	Verified In Dec.	8/15/2017	LATE	
69	XXXXXXXX	Verified In Dec.	7/9/2018	LATE	
68	XXXXXXXX	Verified In Dec.	9/5/2018	LATE	
67	XXXXXXXX	Verified In Dec.	9/9/2018	LATE	
66	XXXXXXXX	Verified In Dec.	8/14/2018	LATE	
65	XXXXXXXX	Verified In Dec.	9/3/2018	LATE	
64	XXXXXXXX	Verified In Dec.	8/28/2018	LATE	
63	XXXXXXXX	Verified In Dec.	9/13/2018	LATE	
62	XXXXXXXX	Verified In Dec.	8/22/2018	LATE	
61	XXXXXXXX	Verified In Dec.	8/30/2018	LATE	
60	XXXXXXXX	Verified In Dec.	8/30/2018	LATE	
59	XXXXXXXX	Verified In Dec.	8/30/2018	LATE	
58	XXXXXXXX	Verified In Dec.	8/14/2018	LATE	
56	XXXXXXXX	Verified In Dec.	7/24/2018	LATE	
48	XXXXXXXX	Verified In Dec.	1/9/2018	LATE	
47	XXXXXXXX	Verified In Dec.	9/18/2018	LATE	
46	XXXXXXXX	Verified In Dec.	7/27/2017	LATE	
43	XXXXXXXX	Verified In Dec.	9/5/2018	LATE	
42	XXXXXXXX	Verified In Dec.	9/5/2018	LATE	
40	XXXXXXXX	Verified In Dec.	8/30/2018	LATE	
39	XXXXXXXX	Verified In Dec.	7/25/2018	LATE	
37	XXXXXXXX	Verified In Dec.	2/9/2015	LATE	
33	XXXXXXXX	Verified In Dec.	9/11/2018	LATE	
32	XXXXXXXX	Verified In Dec.	8/16/2018	LATE	
31	XXXXXXXX	Verified In Dec.	8/7/2018	LATE	
24	XXXXXXXX	Verified In Dec.	9/20/2018	LATE	
23	XXXXXXXX	Verified In Dec.	9/20/2018	LATE	
22	XXXXXXXX	Verified In Dec.	8/16/2018	LATE	
21	XXXXXXXX	Verified In Dec.	8/8/2018	LATE	
20	XXXXXXXX	Verified In Dec.	8/8/2018	LATE	
19	XXXXXXXX	Verified In Dec.	8/1/2018	LATE	
18	XXXXXXXX	Verified In Dec.	7/29/2018	LATE	
17	XXXXXXXX	Verified In Dec.	7/29/2018	LATE	
16	XXXXXXXX	Verified In Dec.	11/18/2018	LATE	
15	XXXXXXXX	Verified In Dec.	8/28/2018	LATE	
14	XXXXXXXX	Verified In Dec.	8/9/2018	LATE	
13	XXXXXXXX	Verified In Dec.	8/9/2018	LATE	
11	XXXXXXXX	Verified In Dec.	8/8/2018	LATE	
10	XXXXXXXX	Verified In Dec.	8/8/2018	LATE	

Line Item	Serial	Verified In December	Due Date	LATE	Cost
8	XXXXXXXX	Verified In Dec.	8/27/2018	LATE	
7	XXXXXXXX	Verified In Dec.	8/27/2018	LATE	
5	XXXXXXXX	Verified In Dec.	9/13/2018	LATE	
4	XXXXXXXX	Verified In Dec.	9/3/2018	LATE	
3	XXXXXXXX	Verified In Dec.	7/12/2018	LATE	
2	XXXXXXXX	Verified In Dec.	5/28/2018	LATE	
1	XXXXXXXX	Verified In Dec.	3/16/2018	LATE	